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NOVEMBER, 1920

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MINNESOTA MEDICINE

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SOCIALISM AND THE PRACTICE OF MEDICINE*

By Jennings C. Litzenberg, B. S., M. D., F. A. C.
Minneapolis, Minn.

Members of the Hennepin County Medical Society: It is in no perfunctory way that I express my appreciation of the honor you have done me by making me your president. To be chosen to preside over one's home society, where all his colleagues know one's faults and are willing to overlook them makes the honor doubly gratifying and I thank you sincerely, but I appreciate still more the loyal support you have given me during my term of office. When the year began, large numbers of the members were absent in the service of our country, which made the work of the society difficult. Now the war is over; our fellow members have returned; we are proud of them; we are glad they are back; now let us get to work and face the post war problems as patriotically as our colleagues met the war situation.

It has been uttered so often that it has almost become a platitude that the war has changed the life of the world entirely, socially and economically. Nevertheless it is true and the problems now facing the medical profession are no exception. Forces which began to work before the war have been given added impetus and new difficulties present themselves.

I wish to consider only one of these problems tonight, namely; the possible effect of certain socialistic tendencies on the future practice of medicine.

Our country was unprepared for war and the dire consequences are well known. Is the medical profession prepared to meet the proposed social changes? I fear not, and it is for that reason that I have chosen this subject, with the hope that I may be able to emphasize the necessity of the profession familiarizing itself with the facts, else others will settle the questions in a way that will be unfair to us and to the public.

Radicalism is in the air. It is disturbing every country. Many phases of social, economic and political life are affected and we hear on every hand bandied about such terms as "socialism", "bolshevism", communism" and "nationalization" with, perhaps, little understanding of their real meaning, except that they all spell "radicalism". Will the practice of medicine be able to escape any effect of this radical thought? That is impossible. But are we then to sit idly by in smug isolation or shall we help the world to resist that which is bad in all this agitation and fearlessly advocate that which may be good in it even if we must change some of our traditional conservatism.

A new era is certainly approaching in the practice of medicine. Problems are demanding solution which the present order seems unable to solve, and we cannot give the proper answer by simple negation. Opposition will not suffice. The medical profession can only secure its rights and do its duty to the public by a thorough study of the social and economic problems involved, by a determination to approach the solution with open-mindedness and a sympathetic spirit of public duty.

The question can never be settled till settled right and it can never be right till we recognize to the full our duty to the public, as well as demanding that our rights be recognized.

The legislatures of the various states show increasing tendency for investigation, regulation and socialization of medicine, and the pity of it all is that this is often done without con-

*Address of the retiring president of the Hennepin County Medical Society.

sultation with the medical profession. This is due largely, I believe, to our not keeping in touch with advancing thought and to a tendency on our part to resent any change. This results in an unintelligent attitude of opposition which smacks too much of standing on our rights rather than intelligent discussion born of thorough knowledge of the social problems involved and their effect on the public, as well as upon ourselves.

As we trace, historically, the development of social insurance as it touches medicine, we will get a clearer idea of what it means and whither it may lead. We will also see that if the medical profession had contributed its best thought instead of its rabid opposition, the early proposition would have been more satisfactory and later proposed modifications less radical.

In the early eighties of the last century socialism had assumed such proportions in the German Empire that Bismark became alarmed. When his oppression and coercion did not stem its tide, he decided to change his tactics and throw to the socialists a sop. This he did in 1881, when he appeared before the Riechstag and proposed sickness insurance, accident insurance and old age pensions. This was the beginning of socialized medicine. Compulsory sickness insurance was made German law in 1883, accident insurance followed the next year and the old age pension enactment came in 1889.

The compulsory feature in these acts was the only thing in them that was original with Bismark. When introducing these bills Bismark said: "Do this without fearing either the sacrifice or the cry of 'State Socialism'. I believe the socialists will then sound their bird call in vain." He was a poor prophet.

The sop was accepted but socialism continued to grow, as is likely to be the case when radical ideas succeeded in modifying conservative thought. Radicalism seldom succeeds in forcing its own program but not infrequently it alters conservatism, liberalizing it sometimes so much that what once seemed radical is now liberal and tomorrow will appear conservative.

It is well for us as a profession to remember this, as we trace the development of social insurance.

When Bismark proposed compulsory health and accident insurance and old age pensions the idea seemed extremely radical, but as different countries and states of our nation have wholly or in part adopted them they appear less extreme. This is particularly true of industrial accident insurance or "Workman's Compensation" as it is called in this country for now that forty-five states have adopted it we have become familiar with it. It has become American law; therefore we forget its socialistic origin.

Social insurance was adopted in one or all of its three phases in Germany in 1884; Austria in 1887; Hungary in 1891; Finland in 1895; Great Britain in 1897; Denmark, France and Italy in 1898; Spain, New Zealand, South Australia and British Columbia in 1902; Russia and Belgium in 1903; Cape of Good Hope and Queensland in 1905; State of Nuovo (Mexico) in 1906; Transvaal in 1907; Alberta, Bulgaria, New Foundland and the United States (for Federal Employes) in 1908; Quebec in 1909; Nova Scotia and Manitoba in 1910; Switzerland and Peru in 1911; Roumania in 1912 and in forty-five states of the Union from 1911 to 1918. Thus, we see that in one phase or another, it is literally sweeping the world. We cannot say that such a tide is only passing socialistic agitation, nor can we hope to stem it by merely asserting that it is wrong. The situation calls for the most careful and thorough study, intelligent analysis and than appropriating what ever good there may be in it to our American life.

The Wisconsin Workman's compensation law was the first to withstand the test of constitutionality in the highest courts.

Forty-five states have now adopted Workman's Compensation laws which, though not entirely satisfactory have been sufficiently successful in the courts and in practice to establish the idea originally socialistic in American law. That which was "radical" yesterday is only "liberal" today; will it be thought "conservative" tomorrow? Thomas Howell, Superintendent of the New York hospital says: "This country has successfully made the first step in social insurance — workman's compensation. The next step is to provide health insurance."

What is Health Insurance?

The American Association of Labor Legislation drafted a so-called "Model Bill for Health Insurance" which was to be introduced into all state legislatures, which provided:

(1) Cash benefits equal to two-thirds of the workers wages for twenty-six weeks; (2) free medical and surgical service; (3) free nursing; (4) free supplies; (5) free hospital; (6) cash benefits to dependents; (7) funeral benefits; (8) maternity benefits; (9) free dental care; (10) free medical attendance for dependents; (11) compulsory for all earning less than $1,200 per year.

It is proposed that the cost of health insurance shall be met by assessing two-fifths to the employer or 1.5 per cent of his pay roll, two-fifths to the employee or 1.5 per cent of his wages and one-fifth to the State or .75 per cent of the payroll.

In many of the larger manufacturing concerns voluntary associations, either of the employees alone or of employer and employees together, have been formed upon a similar plan. This is a distinctly socialistic tendency in which the physician's rights are often prostituted, chiefly because his aloofness leaves him out of the settlement. Would it not have been much better, by a sympathetic attitude, to have been a part of, instead of apart from these consultations?

Some employers have met the problem with what is called "Group Insurance" by which he insures his employees, without medical examination, against death, disability, sickness and provides old age pensions. Those who argue for compulsory health insurance aver that their plan proposes to make group insurance mandatory for all employers.

I shall not weary you with a detailed recital of the arguments for and against health insurance for it is not my purpose to espouse either the pro or con side of the issue, but it is my desire to try to impress upon you that there are two sides to the question and that there are so many good arguments on both sides, and there are so many facts to be determined, that it behooves the medical profession to acquaint itself with all phases of the problem, so that it may take an intelligent part in the solution. Otherwise the questions will be settled for us and we will "be left at the post".

Briefly the arguments for health insurance are: (1) There is too much preventable or curable sickness among workers, thus hampering industry and injuring the family of the worker; (2) the average annual loss of time is nine days per individual; (3) health insurance would protect the worker and his dependents and help industry; (4) it would supply all the workers' sick needs—physician, nurse, surgeon and supplies, also reduces medical bills; (5) he would get a cash benefit of a reasonable part of his wages for a limited time; (6) it is practical as proven for thirty-five years experience.

The arguments against compulsory health insurance are: (1) It is paternalistic, originated in Germany and is un-American; (2) European experience does not prove its value; (3) the public does not demand it; (4) the labor unions do not want it; (5) the medical profession is against it, because it is a sacrifice of thorough work to hasty superficiality and leads to dishonest practice; (6) it leads to malingering and unnecessary running to the physician; (7) its cost would be excessive to the taxpayers; (8) it would lead to political jobbery; (9) the physician would be a drudge, overworked and superficial in his labors; his remuneration would be small and his individuality would be dwarfed.

The proponents of health insurance reply to the criticism that it is "paternalistic" by asserting that it is not paternalism but democracy, because all interested parties cooperate in its management under state supervision.

The workings of health insurance, and the radical limit to which it may be proposed to extend it, when the medical profession does not take part in the solution of the problems from the beginning, is very well illustrated by the history of health insurance in Great Britian.

Sickness Insurance or "Health Insurance" as it is called in England attracted little attention in America, until our interest was excited by the bitter controversy between the British Medical Association and Lloyd-George's government after the introduction of the "National Health Insurance" bill in the House of Commons in 1911. This bill proposed the insurance of persons over sixteen years of age providing them with: (1) Medical treatment, including

medical and surgical supplies; (2) treatment in sanatoria for consumptives; (3) payments of maternity benefits; (4) arrangement for payment of additional benefits through mutual societies; (5) compensation for injuries to workmen; (6) benefits to be administered through local boards directly or, through benefit societies making arrangement with medical men appointed under the act, called "The Panel"; (7) payments to be made by the government, two shillings nine pence; by the employer, three shillings nine pence; and by the insured, four shillings nine pence; (8) per capita payment of fees to the physician was adopted.

When introducing the bill Mr. Lloyd-George said:

"When Bismark was strengthening the foundation of the new German Empire one of the very first tasks he undertook was the organization of the scheme which insured the German workingman and their families against the worst evils which come from the common accidents of life, and a superb scheme it is. It has saved an incalculable amount of human misery to hundreds of thousands and possibly millions of people who have never deserved it."

The whole medical profession of Britian, led by the British Medical Association, fought the bill strenuously, uncompromisingly, and with the bitterest acrimony, but Lloyd-George forced its passage.

As we watched the fight in sympathetic interest with our British colleagues we have consequently observed the workings of the bill with scepticism. Conflicting reports have reached us as to the results, but the weight of opinion seems to be that while there are serious defects in the bill it has been fairly satisfactory and the principle involved merits further trial, after defects have been remedied.

Dr. Boyce of the Canadian Immigration Medical Service says: "The benefits to the persons insured and to the medical officers have proved so great that the British Medical Council has urged extension of the act to include further payments to specialists and the inclusion of such work as prenatal care, child welfare, etc."

After the act in Great Britian had been in force seven years a Committee of the British Medical Association made the following report: "The degree of unanimity so far disclosed is somewhat remarkable and suggests that the scheme, which is proving a distinct gain to the medical profession as well as to the public, be still further extended to the dependents of insured persons and for providing when necessary, specialists and nursing service, institutional treatment and maternity attendance."

The act provided no institutional treatment except sanatoria for tuberculosis. The maternity benefits of thirty shillings with an additional thirty shillings if the wife were also a worker, did not provide attendance at childbirth.

That experiments in social medicine, if at all successful, lead to more liberal extensions or to quite radical steps, is attested by a proposition to extend health insurance to the whole population as set forth in the following editorial in the Journal of the American Medical Association under the caption "An English Experiment in Social Medicine."*

"In England the medical profession and public are apparently in a state of readjustment."

"Social insurance in the four years preceding the war, the needs and emergencies of war times, and the discussion of the last year, culminating in the creation of a National Health Ministry, all have combined to arouse and concentrate the discussion on the improvement of Medical services."

"Dr. David McKail, lecturer on public health at St. Mary's College and Dr. William Jones, clerk and treasurer of the Glasgow Insurance Committee have worked out a plan for public medical service as a substitute for the social insurance scheme now in operation. They condemn the present plan for failure to provide any form of institutional treatment except sanitoria treatment of tuberculosis; and for furnishing medical service to only one-third of the population. They propose to build up a complete medical service, furnishing unrestricted treatment to every citizen and envolving the enrollment of the medical profession and public control of all general hospitals and infirmaries. The proposed plan is founded on an experiment to meet war conditions, when, for a time, dispensaries were established in Glasgow for concentrating the patients of absent physicians. The city was divided into districts and a consultation center established in each. They es-

*Vol. 73, No. 22, p. 170.

timate that for 100,000 inhabitants twenty-seven physicians working thirty-three hours a week would be required, a twenty-five per cent increase for reasonable needs would necessitate a staff of thirty-three physicians, each having a vacation. Births would require four obstetricians, minor surgery and specialties six, making a total of forty-three physicians exclusive of institutional and consultant service. The staff would be composed of seniors receiving $4,000 to $4,500, middle grades receiving $2,500 to $3,500 and juniors receiving $1,500 to $2,000. Each junior would be allowed time for and be required to do graduate work and special study with a view to advancement in service.

"Provision is also made for dental treatment.

"The cost would be less than seven shillings per capita.

"An interesting side light is thrown on the provision for free choice of physicians under the scheme of social insurance now in operation. No effort was made to exercise any choice, all going to the nearest and most conveniently located physician.

"The alleged advantages to the physician under the proposed new plan are: limitation of working hours, guarantee of adequate income, avoidance of waste of time and energy, the opportunity for increased income, the accumulation of experience and the opportunity for graduate and special study for every practicing physician.

"The advantages claimed for the individual are better treatment at a much less expense and the advantages for the community are economy of administration and the prevention of a large amount of disease." (See London Lancet Oct. 11, 1919).

This is an extension of health insurance never dreamed of by its originators and it goes far beyond the wildest schemes proposed on this side of the water; it approaches "the limit" in the socialization of medicine, only "nationalization" of physicians could go further, and even this is now proposed.

As I said before, one radical thing leads to another. Now we see the following piece of news coming out of London in the public press under date of December 11, 1919, and topped with a big heading "British Doctors May Become Nationalized". "There is a prospect in the near future of the medical profession in Great Britian becoming nationalized. That is, all doctors will be under supervision of the state, paid by the state and their energies directed by the state. Doctors will then become servants of the state, like army and navy officers and civil servants.

Dr. John Playfair, President of the Medical Guild, says "that numbers of the doctors would be quite willing to accept state medical service if such service were limited to the needy classes. Their fear, however, was that the state medical service proposed by the government would be of much wider scope than that which the Guild would approve, and might ultimately embrace the whole community, including hospitals, and all institutions in any way connected with maintenance of the health of the people."

The Workman's Compensation law was adopted in Minnesota with the physician's having little voice in its framing. Employers, labor leaders and lawyers have more voice in a subject in which the physician is vitally interested and in the success of which he is the very crown of the arch.

This is chiefly the fault of the profession itself, which has allowed the rapidly moving thought of the economic and industrial world to sweep by as a thing apart, and in its complacent isolation has allowed others to propose solutions of problems which cannot be rightly solved without the best thought of the medical profession.

Health insurance has not yet come in Minnesota but it always follows closely upon the heels of accident insurance and it will be proposed and settled by those who cannot, in the very nature of things, understand, unless the profession awakes and studies the problem thoroughly and then takes a hand in the settlement. It will not do to simply organize opposition for that will be interpreted as a selfish attempt to protect our own interests, but the question must be tackled in a broad minded way. This will require study and a sympathetic attitude toward the welfare of the worker and the general public.

We should begin to prepare ourselves, now, for the inevitable discussion by becoming familiar with what health insurance is. When the time comes and come it will soon, a commission will probably be formed, as in other states, to investigate the whole subject which should de-

termine whether there really is a need for health insurance in this state, to find out what has been done in other countries and states, to determine the costs, which will be enormous, and to decide the source from which the money shall come.

As Mr. Lapp, Director of Investigation of The Health and Old Age Insurance Commission of Ohio says: "The whole truth must be known. The issue is too important and the consequences too vital to the social and economic welfare of the state to warrant action on anything less than the whole truth. Health insurance is approved by all, just as fire, life and accident insurance are accepted; the only question at issue is whether health insurance can be and should be organized by the state on a universal compulsory basis."

Prevention as well as cure is needed. Health departments have to do with prevention, health insurance with sickness after it occurs. The difficulties of the situation are illustrated by the divided report of the Illinois commission. The majority of the Illinois Health Insurance commission reported that it did not feel justified in recommending compulsory health insurance. The minority report by two members, one a physician and one a layman, reported that the investigations of the commission give "conclusive evidence of the need for a system of compulsory health insurance applicable to practically all wage earners that would more equitably distribute the burden of the cost of sickness."

"Where doctors disagree—?"

The difficulties are again emphasized by the fact that the commission appointed by the Pennsylvania legislature after more than a year's work asked for two years additional for further investigation.

No matter how attractive the theory of health insurance may appear, the problems it brings up are too vast and intricate to be answered dogmatically.

Mr. Isadore Stern of the Pennsylvania commission puts this idea very well: "If a system of health insurance can be devised that will satisfy the employer and not humiliate the employe by compelling him to go to a physician he does not care to go to; if such a system can be inaugurated at a reasonable cost, and will not stifle individuality among physicians and will not be paternalistic, then it should be established; on any other basis it would be contrary to common sense."

Dr. Otto P. Geier* so fully agrees with some of the ideas I have tried to emphasize and he expresses them so forcibly that I cannot refrain from quoting him at length:

"Are we not assuming the same negative attitude toward the movement for better organized application of group curative medicine? Are not the physicians practically being ignored by the framers of compulsory sickness insurance? And yet we shall all admit that the future of scientific teaching of medicine as well as its economic practice will be absolutely determined by the enactment of such a law. Unless the profession comes out of its social, or rather unsocial torpor, we may be sure that such legislation will be made to fit the whims of the perniciously active reformer, whether or not it pleases us or benefits labor or capital. Here again we shall have permitted industry unaided, to visualize ahead of us the necessity of a constructive, preventive health program, as an integral part of any intelligent legislation for health insurance. How can we understand and contribute to economic and social legislation unless we get a new view of the problems of industry? Can we do this best merely by prolonging our scientific discussions in sequestered places, or by also entering into the life and understanding of industry.

"We must recognize that almost all old standards of thinking are in the discard. We are passing through a period of unstable thought. It behooves us as a profession to take inventory and better fit ourselves for this national reconstruction.

"It is for the medical profession at large to determine what place it will hold: whether in the swift current of thought, or in the quiet eddies; whether to stay on the edge of life, or close up to the great melting pot of human experience; whether to remain as spectators, or join in the struggle of progress; whether to rest in billet, or press on to the firing line where men are fighting for life's goal."

The medical societies of Wisconsin and Pennsylvania have indorsed health insurance "in principle." Thus they have put the seal of approval upon the idea but leaving the details to

*Surg. Gyn. Obst., Jan., 1920.

be worked out by the investigations and study, in which I am urging that the medical profession shall take a really intelligent part.

In closing permit me to say that we shall fail of our own full duty if we do not recognize the fact that ours is a profession and not a business only. We must look upon our profession not as a business alone but as a calling as well which in itself implies public service. We must realize that the public is so vitally interested in the practice of medicine that, in many ways, it is more or less of a public utility, which means that our decisions must at all times take the public into consideration and into our confidence, otherwise we may have to submit, as public utility corporations do, to public control which will give better results by mutual understanding and concessions than by compulsion.

There ought to be a common ground where radical and conservative can become more moderate. If this is not possible we will be faced with the danger of "state socialism", which is gradually growing in strength whether we acknowledge it, or not. The socialist and his unwitting ally, the chronic social reformer, the superficial theorists and the demagogues will settle these questions for us and settle them wrong, unless we make common cause with the saner elements of society, who will be careful to see that justice is done to the employer, the employe, the public and the physician.

119 Institute of Anatomy, University of Minnesota.

A CLINICAL STUDY OF 83 GASTROJEJUNAL ULCERS: DIAGNOSIS VERIFIED AT OPERATION*

By G. B. EUSTERMAN, M. D.
Section on Medicine, Mayo Clinic,
Rochester, Minn.

The primary object of this paper is to enumerate the salient clinical features associated with gastrojejunal ulcer in the hope that it may be of use to others interested in this difficult field of gastro-enterologic diagnosis. Valuable contributions to the subject have been made by von Key, Paterson, von Roengen, Lieblein, Moynihan, W. J. Mayo, C. H. Mayo, Carman, Balfour, Butsch, and others.

The series of cases of gastrojejunal ulcer herewith reported consists of two groups. In Group 1 are forty-seven cases which followed gastro-enterostomy performed in the Mayo Clinic for benign duodenal or gastric ulcer, and in Group 2 are thirty-six cases in which the primary operation was done elsewhere.

It seems expedient to preface the consideration of gastrojejunal ulcers with a brief review of the factors underlying a recurrence of symptoms following gastro-enterostomy. The operation performed by a surgeon of recognized ability for juxtapyloric benign ulcers is one of the most satisfactory in the domain of surgery. One must not lose sight of this fact. The various reasons or causes for disappointment or failure after gastro-enterostomy are as follows:

1. In our experience about two-thirds of the surgical failures occurred in the cases in which operation was performed in the absence of a lesion intrinsic to the stomach or duodenum. This is evidenced by the fact that my surgical colleagues have undone more than 300 gastro-enterostomies performed elsewhere, and about forty performed at the Clinic during an earlier period. Ulcer-bearing patients of the psychoneurotic type, or of the asthenic type, whose predominant symptoms are of neurotic origin often fail to obtain complete relief[5].

2. Among the defects in technic which are responsible for the failure of a smaller number of patients to obtain relief are a stoma that has been made too large or too small, or is im-

*Presented before the Southern Minnesota Medical Association, Fairmont, Minn., June, 1920.

Fig. 1. Old gastro-enterostomy with inflamed area on serous surface.

properly placed, a long jejunal loop, improper application of the jejunum to the stomach so that the direction of the proximal short portion of the jejunum is from left to right, and other surgical shortcomings.

3. A lack of thoroughness in operating, such as neglecting to remove a diseased gallbladder or an appendix at the time of an otherwise successful operation, or to deal directly with an ulcer-bearing area when circumstances warrant it may be the cause for incomplete relief[9].

Symptoms of a painful nature identical with or similar to the original complaint, may reappear at variable periods following operations or the original symptoms somewhat abated may continue after operation. The causes underlying the recurrence of symptoms are gastrojejunal ulcer, reactivity in the original partially healed or unhealed ulcer, carcinomatous changes in a chronic gastric ulcer, or the formation of a new ulcer in the duodenum or stomach. To a lesser degree, adhesions from natural causes in the region of the pylorus, or as the result of too much manipulation or repeated operations, cripple gastric function and provoke distressing symptoms. It is in these postsurgical types that the greatest difficulty is encountered in determining the factor or factors underlying the complaint. This is especially true in the early stages of the trouble when thorough medical or surgical treatment promises the most, and when combined clinical and laboratory diagnostic procedure is not sufficiently informative.

Successful differential diagnosis presupposes a thorough knowledge whenever possible of symptoms and conditions existing before operation, during operation, and after operation, especially with reference to whether or not an ulcer actually existed, whether gastro-enterostomy was done, or whether some procedure was also carried out on the ulcer or pylorus. Any difficulties encountered during the operation or immediate postoperative sequelae have especial significance. In the absence of reliable information the physician is thrown on his own diagnostic resources. In the examination special attention is paid to hyperacidity and hypersecretion, the emptying capacity of the stomach seven to twelve hours after a Riegel meal, blood in the gastric extract and feces, palpable masses, and visible peristalsis. In experienced hands the combined fluoroscopic examination and roentgenogram of the gastroduodenal area is an increasingly valuable diagnostic aid and frequently furnishes invaluable evidence as to gastric peristalsis and motility, the patency of the pylorus, the status of the original area of ulceration, the condition of the stoma and the presence or absence of new ulcers (Fig. 1).

Gastrojejunal ulcer is a formidable complication of gastrojejunostomy; its incidence is estimated at from 2 to 3 per cent. In 3,700 gastroenterostomies for benign ulcer in the Mayo Clinic gastrojejunal ulcer was the cause of a secondary operation in forty-seven instances, or in less than 1.3 per cent. This probably does not represent all the gastrojejunal ulcers that have occurred because some have been operated on or treated elsewhere, others have given rise

to disturbances for variable periods after which they have healed spontaneously, and a small number of untreated ulcers are still giving trouble.

So far the actual cause of the lesion has not been definitely determined. From our experience it has appeared that the use of unabsorbable suture material such as linen or silk is a highly important factor. Stitch ulcers continue to develop, however, though with greatly reduced frequency, since the exclusive use of chromacized catgut sutures. Other causes to which they have been ascribed are the inaccurate apposition of mucous membrane,the bruising of the portion of viscera embraced by clamps, interference in one way or another with the local blood supply, continuance of the cause, whatever it may be, of the original ulcer, and a persisting hyperchlorhydria. Immediate and remote factors frequently unfavorable to ultimate surgical success are always present. Hyperacidity and hypersecretion and pylorospasm and disturbed motility are known to make their reappearance by virtue of temperament, dyscrasia, vagotony, or indiscretion, and to work mischief. When it is considered that ulcers of the stomach and duodenum are largely embolic infections from some distant focus of infection" a failure to remove such foci undoubtedly favors recurrence of ulceration. Flint and others have shown that the anastomotic area is the site of a healing ulcerated surface for a period of at least fourteen days. In view of this fact it is reasonable to assume that the traumatizing effect of bulky or coarse food ingested soon after operation might predispose to ulceration at the new stoma. We have perceived no permanent ill effects, however, in a large series of cases in which a fairly generous diet was allowed from eight to ten days after operation. A careful routine postoperative management is nevertheless invariably of advantage to the patient (Fig. 2).

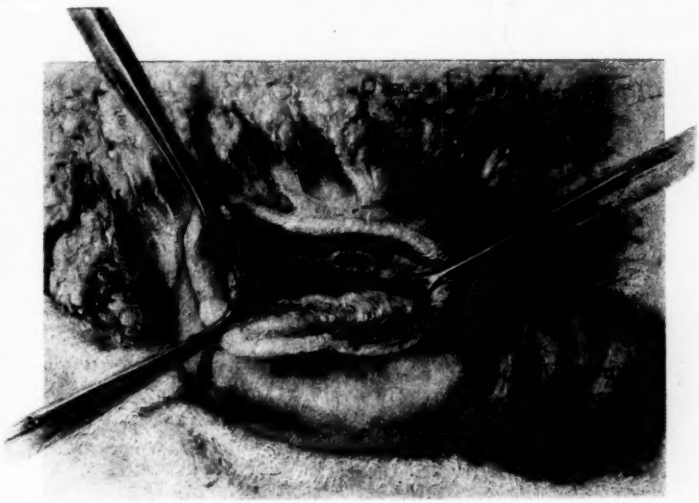

Fig. 2. Old gastro-enterostomy opened to expose ulcer (callous type).

While gastrojejunal ulcer furnishes no syndrome which differs materially from that of ordinary ulcer, a consideration of its surgical pathology may explain some of its clinical features or departures from type. The lesion does not usually have a crater and morphologically it is more like the saddle ulcer of the stomach. Rarely it is of the moth eaten, erosion type, with little inflammatory reaction. The process often involves the distal segment of the anastomosis opposite the stoma and spreads superficially, especially over the gastric area neighboring the ulceration and may involve the entire stoma. The base of the ulcer is usually in the transverse mesocolon, it may involve the colon, or rarely may penetrate it, in which case a gastrocolic fistula is formed, or the ulcer may point outwardly with its base in the abdominal wall, where the inflammatory mass or abscess is apparent. The mass is more accessible in cases in which an anterior gastro-enterostomy was performed originally. As in cases of the ordinary chronic ulcer, subacute or chronic perforation, or abscess formation or hemorrhage is a frequent complication. At times it is the cause of severe pain, local soreness, tenderness, or tumefaction. Induration or scarring, contraction, or extensive adhesions about the anastomotic area, involving both the stomach and distal limb of the jejunum, is

routinely noted by the surgeon. The stomach is usually large in the obstructed cases. Occasionally the patient may complain of pain on turning or twisting the body, raising the arms, or during a lifting strain, and this symptom is usually evidence of adhesions involving the abdominal parietes. By virtue of the location of the gastrojejunal ulcer, the subjective pain and objective mass or tenderness are frequently situated lower than before operation. At times the ulcer is almost entirely within the jejunum, although the suture line is invariably implicated (Fig. 3).

Fig. 3. Adhesions separated to reach ulcer site.

CLINICAL FEATURES IN THE SERIES OF FORTY-SEVEN CASES

Our own series of forty-seven cases will with few exceptions be discussed apart from the thirty-six cases in which the original operation was done elsewhere. In our cases a uniform gastrojejunostomy was done for a definite, demonstrable lesion. In only two was an anterior gastro-enterostomy performed. Forty of the patients in our series were males. There were thirty-three males in the series of thirty-six patients, making a total of seventy-three males to ten females in the two groups. In primary benign chronic gastric and duodenal ulcer the average ratio is about three to one, so that in gastrojejunal ulcer the sex ratio is more than doubled.

The forty-seven cases in our series seem to fall into four main types: (1) The regular ulcer type in which the postoperative complaint is identical with or similar to the symptoms of the original ulcer; (2) the irregular ulcer or gastric ulcer type; (3) the purely intestinal type; and (4), the complication type characterized chiefly by obstruction, perforation, or by a sudden onset of hemorrhage, single or repeated, without any antecedent pain feature, not unlike conditions obtaining in a small group of primary ulcers.

In Type 1 are twenty cases in which the symptoms were identical with, or similar to, the original complaint in that the clinical course was marked by periods of exacerbation alternating with relief, the pain or distress and associated symptoms bearing a definite time relation to alimentation, with regular and consistent relief by food, alkalies, and lavage. One significant difference was the fact that ten

patients volunteered the information that the pain was lower than formerly, usually at the level of the navel, to the left of it, or in the hypogastric area.

In Type 2 are twenty-one cases recorded as the irregular-ulcer or gastric-ulcer type since the time of appearance of the symptoms and their control was more variable and inconstant, the exacerbations tended to be more frequent although briefer than those characterizing the ulcers of Type 1 without complete periods of relief. In six of this group the preoperative syndrome was moderately irregular. But throughout the histories the relationship between food intake and discomfort, although not clearly definite, is sufficient to point to an intrinsic gastric lesion as the underlying cause[4]. Therefore in 41 of the 47 cases (87 per cent) the train of symptoms was such as we associate with chronic callous ulcer. In nine cases of this type and ten of Type 2 (22 per cent) or 40 per cent for both types the location of pain and tenderness had assumed a lower position. The onset of symptoms is usually gradual, the course, as a rule, rapidly progressive in the untreated cases, tending to become continuous earlier than in primary ulcer.

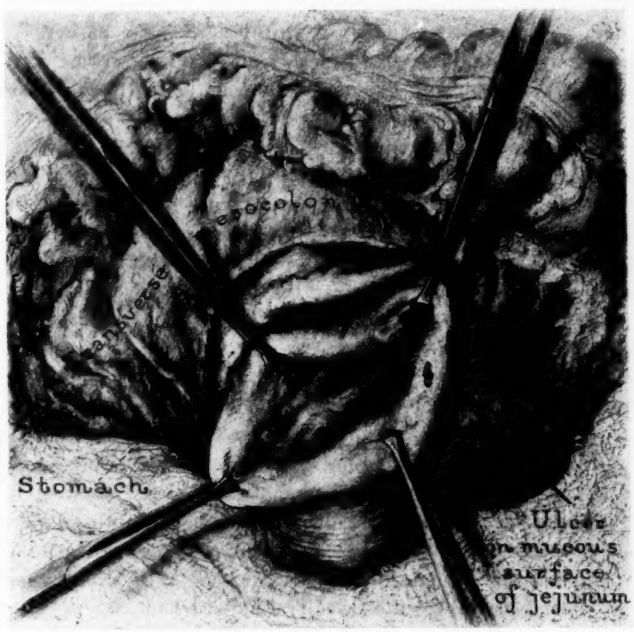

Fig. 4. Mesocolon dissected from gastro-enterostomy and opening made into mucosa. Erosion type of ulcer.

In Type 3, the purely intestinal type, there were two cases, in which the symptoms bearing no relation to food consisted largely of pain referred to the lower abdomen associated with bloating or defecation, occasional diarrhea, or severe constipation alternating with diarrhea, at times presenting a picture identical with intestinal obstruction.

In Type 4 were four cases, in which the characteristic pain or epigastric discomfort was absent. In three of the cases there was recurring melena, and in the fourth nocturnal vomiting of retained food, and severe constipation (Fig. 4).

The time of onset of symptoms after gastroenterostomy is of interest. Thirty-five per cent of our group of patients had a recurrence of symptoms within six months; 56 per cent within a year, and 88 per cent including the patients who experienced only partial or no relief, were complaining within one year after the original operation. In the group operated on elsewhere the percentage was about the same; in ten cases clinical evidence of a pre-existing ulcer was scant, and in twelve cases (33.3 per cent) no scar or other signs of the ulcer were found at the second operation. This, among other factors, permits the inference that the cause of gastrojejunal ulcer is largely some defect in the operation.

By the gastric analysis hyperacidity was found to be present in 60 per cent of the cases, and hypoacidity in only two cases. In the remainder the acidity was about normal. Twelve hours after a motor meal food residues in variable amounts were noted in eight of forty cases tubed, or in 20 per cent. Altered blood reactions in the gastric extract were strongly positive in ten (25 per cent).

Visible peristalsis was apparent during physical examination of the patients with marked

obstruction. Tenderness was localized or diffused in all instances. A small mass was definitely palpated in six cases, and suspicious in two others. With one exception the location of the tumor was at or to the left of the umbilicus.

Gross hemorrhage by the mouth, or bowel, or both, was recorded in eleven cases. In only two had there been bleeding prior to the first operation. Thus the occurrence of late hemorrhage after gastro-enterostomy for an ulcer that had not bled previously is strong evidence for gastrojejunal ulcer. In cases of marked anemia without frank hemorrhage occult blood was usually found in the feces, which is of equal diagnostic import. The majority of the patients were considerably under weight; they had had active daily symptoms ranging for from three weeks to seven months prior to examination. Extensive dental repair, severe pyorrhea, or dental caries was the rule rather than the exception.

Linen or silk sutures were found to have been retained in fourteen instances. In ten the strand or loop was found in the line of suture at the ulcerated area, and seemed to be the causative factor. The original ulcer was healed as a soft scar, or had strictured in the process of healing, causing marked obstruction to the outlet. One strictured area was reported as 1¼ inches in diameter. Reactivation of the old ulcer, probably the result of disturbed motility and hyperacidity, was evident at the time of the secondary operation in eight cases, while a new indurated duodenal ulcer had formed in three cases. Stricture caused by the healed ulcer, and edema and spasm of a new ulcer, pyloric occlusion done at the original operation in conjunction with contraction of the stoma, explained the cause of marked gastric retention in these cases.

TYPES OF OPERATION

The nature of the operative procedure, obviously difficult at all times, depended chiefly on the conditions found and in a measure on the technic most frequently employed by the surgeon. The gastrojejunal ulcer and any reactivated or new ulcer was excised in all instances by knife or cautery, and one of four procedures followed:

1. The gastro-enterostomy was cut off, the openings in the jejunum and stomach were closed, and some type of gastroduodenostomy carried out (eighteen cases).

2. In cases of a patent pylorus and duodenum the gastro-enterostomy was cut off and the opening in the stomach and the jejunum closed (thirteen cases).

3. A plastic operation was performed on the former gastro-enterostomy, or in other words, the old gastro-enterostomy was established after excision of the ulcer (thirteen cases).

4. The old gastro-enterostomy was cut off and a new gastro-enterostomy made (three cases).

No one method has any inherent advantage. The operative mortality was 5.5 per cent. About 65 per cent of the patients were cured or satisfactorily improved.

Gastrocolic fistula developed in two cases. Lienteric stools, diarrhea, stercoraceous odor to the eructations, feces or intestinal flora in the gastric contents, and nutritional disturbances were clinical characteristics. A barium meal or clysma will confirm suspicions of a communication between the stomach and the transverse colon. The precaution should be taken to wait for from ten to twenty minutes after the administration of the barium before plates are made, if earlier roentgenographic examination is negative.

CLINICAL FEATURES IN THE SERIES OF THIRTY-SIX CASES

In the series of thirty-six cases in which the primary operation had been done elsewhere a secondary operation had been done in thirteen cases for an immediate postoperative complication, or later for "adhesions" about the new outlet. In at least ten of the cases the characteristic preoperative history was lacking, and in a considerable number gastric analysis or fluoroscopy had not been done.

In thirty-four of the thirty-six patients in whom the preoperative history was recorded, five stated that their symptoms were identical with the original trouble; in sixteen the symptoms were similar, and in thirteen they were different. In general it may be said of this group that those with good evidence of ulcer existing prior to the operation had a fairly regular ulcer type of recurrence; those with

an irregular preoperative ulcer or functional picture had a similar irregularity postoperatively; those with a different syndrome were patients in whom gross technical error, intestinal or other complications were found. In thirteen (36 per cent) unabsorbable suture material was found in the ulcer area or suture line. Gross technical error was found in eight cases, chiefly a long jejunal loop turned in the wrong direction (left to right). In one instance, through error, a gastro-ileostomy was done, necessitating an entero-anastomosis nine days later because "the stomach did not empty". In twenty-four (67 per cent) relief was experienced for a variable period after operation; in twelve there was no relief or only partial relief.

Twenty-two (73 per cent) of the thirty patients whose condition permitted tubing had hyperacid gastric contents. Anachlorhydria was found in three, in each of whom only one gastric analysis was made. A palpable mass was found in seven (20 per cent). In eight the pain was definitely lower than with the original ulcer. There was a history of gross hemorrhage in fourteen (39 per cent), but seven of these had bled prior to the original operation, so that in the remaining seven the hemorrhage seemed incident to the secondary ulcer. The average loss in weight was 18 pounds. Reactivation of the old ulcer was definite in seven, and probable in two. In twelve instances no evidence of a preexisting ulcer was demonstrable. Gastrocolic fistulas were present and repaired in two cases. Recently I observed such a case in which there were no premonitory symptoms of ulceration. There had been no pain, discomfort or gastric disturbance prior to the onset of fecal vomiting, frequent bowel movement of undigested material, and rapid loss in weight.

Forty-five per cent of the thirty-six patients in this series were cured or improved. One reason that the percentage of cures in this series is lower than in our series is because the patient is merely restored to his preoperative condition after the gastro-enterostomy is cut off, or a pyloroplasty is done under unfavorable conditions.

DIFFERENTIAL DIAGNOSIS

In the differential diagnosis of these cases it is necessary to exclude the most probable factors, such as reactivation of a partially healed or unhealed ulcer, a new ulcer, or, in case the ulcer was originally gastric, the rare possibility of malignant degeneration in the presence of a gastro-enterostomy. All painful recurrences should be regarded from the standpoint of a gastrojejunal ulcer, and this lesion should be excluded first as the underlying factor. While clinical history, gastric chemistry and the physical examination, or the results of medical management may reveal an ulcerative process, its location may be surmised only. In the presence of gross retention or a palpable mass in the region of the umbilicus the evidence seems sufficient to allow an unreserved diagnosis of gastrojejunal ulcer. If the area of pain has assumed a lower level, especially in the left umbilical quadrant, it is valuable contributory evidence. Bleeding, gross or occult, in the absence of prior hemorrhage, incomplete or temporary response to intensive treatment, and a marked progressiveness of the clinical course, are features which strengthen the possibility of gastrojejunal ulcer. In the first and second types of ulcer with low pain and in the so-called intestinal type, the error of interpreting the symptoms as due to "irritable colon", colitis, or other similar conditions should be guarded against. In about half of all the cases the patient complained of radiation of pain to the lower abdomen to one or both ileac fossae. This area of radiation is infrequently observed in primary ulcer. The frequent involvement of the transverse colon, jejunum, and occasionally the ileum, seems to be the plausible explanation of the mild and the more severe evidences of intestinal disorder.

ROENTGEN EXAMINATION

The roentgenologic findings are of primary importance and often render a diagnosis conclusive. Carman calls attention to various phenomena in the presence of a gastrojejunal ulcer, among which are deformity of contour about the stoma, exaggerated peistalsis, gastro-enterostomy not freely patent, barium retention, and spasticity or enlarged stomach. In our series of forty-seven cases, of which forty were studied by the roentgen-ray, an unequivocal diagnosis of gastrojejunal ulcer was made in eighteen, and incomplete but contribu-

tory evidence was found in fourteen, or in a total of 80 per cent. The findings were negative in eight (20 per cent). In the thirty-six cases in which the primary operation was done elsewhere and in all of which fluoroscopy was done, the positive and contributory diagnosis was made in more than 55 per cent. It is of interest to note that in three cases (Cases 21303, 96188, and 249903) no gastro-enterostomy was seen in the fluoroscope, although the stoma at the time of operation was of normal size in two, and contracted to one-half normal size in the third case. Such an examination should be repeated if there is good reason to believe that a stoma exists.

CONCLUSIONS

1. Gastrojejunal ulcer is a formidable cause of recurrence following gastrojejunostomy, and occurs in from 2 to 3 per cent of cases; in 1.3 per cent of our cases a secondary operation was performed for the condition.

2. The ratio of males to females is 7 to 1, which is two and one-half times greater than the sex ratio in primary ulcer.

3. The cause of this lesion is largely due to technical error or mechanical defect in the operation itself. In one-third of all the cases retained unabsorbable suture material was a highly probable causative factor.

4. The symptomatology closely approached that of benign ulcer in 87 per cent, which comprise the regular and irregular ulcer types. The remainder are included under the intestinal and complication types.

5. Eighty-eight per cent of the patients, including those who obtained incomplete or no relief, had a recurrence of symptoms within one year after the original operation.

6. Late painful recurrence is frequently due to a gastrojejunal ulcer. Other possibilities to be ruled out are reactivation of the original partially healed ulcer, new ulcer, and malignant degeneration in a gastric ulcer.

7. Clinical features of diagnostic importance are as follows: (1) gross gastric retention, (2) small movable mass in the region of the umbilicus, (3) postoperative pain assuming a lower level, (4) gastrocolic fistula, (5) bleeding, gross or occult with associated anemia in the absence of preoperative hemorrhage, and (6) a progressive course and lack of satisfactory response to medical treatment.

8. Exact preoperative localization of the ulcerative process is only possible through the cooperation of the roentgenologist. The roentgenologic examination furnished reliable direct or contributory evidence in 65 per cent of all cases.

9. Careful operative technic combined with immediate and continued postoperative medical management should greatly reduce the incidence of the lesion. Medical participation under any circumstance in addition to the removal of foci of infection insures satisfactory surgical end results.

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DISCUSSION

DR. HUGH S. WILLSON, Minneapolis: This paper of Dr. Eusterman's is extremely interesting to those of us who are doing gastroenterological work.

We are constantly coming in contact with gastro-enterostomized patients who are having post-operative trouble: either a recurrence of the original symptoms or the development of new symptoms.

These conditions are extremely difficult to interpret oftentimes and the real underlying causes are not yet worked out.

The literature on the subject of gastro-jejunal ulcer is rather scant. Wright in the January, 1919

number of the Boston Medical Journal reported some 170 cases from literature. I believe the series presented by the Mayo Clinic is by far the largest from any one group and it is my opinion that the facts underlying these conditions will have to be worked out by the Mayo Clinic and similar bodies, where the medical and surgical care of the patient is under complete control of the one organization.

The points in this paper that have interested me particularly are in reference to gastro-jejunal ulcer. The causes of such is a fertile field of speculation. We know that in all probability non-absorbable suture material acting as a chronic irritant is an important factor but ulceer occurs also where such has not been used.

It would seem that the idea as expressed by Patterson might account for this condition: that is, the action of gastric juice on an unaccustomed mucous membrane. Attention has been called to the fact that ulcer is of more frequent occurrence in the long loop operation and especially in enteroanastamosis where the stomach secretion is not so thoroughly mixed with bile and pancreatic secretion before coming in contact with the distal mucous membrane.

I believe that to a certain extent the cause of gastro-jejunal ulcer would be the same as the primary lesion. This has not been worked out.

Among the gastroenterostomized patients I have seen there have been three cases which I considered gastro-jejunal ulcer but they have cleared up on management, and without the surgical demonstration of such ulcer I can not be sure that my diagnosis was correct. Where the stomach has been interferred with surgically it is much more difficult to make a hard and fast diagnosis.

While I have considered X-Ray my most valuable diagnostic help in gastric and duodenal ulcer, I have not been able to place so much confidence in it in past operative cases on account of deformity caused by surgical procedure.

Motility, definite tender points, also patency and size of the stoma under the screen are the most important findings.

Stomach chemistry is also affected by the new routing of duodenal contents and is not of much value.

My impression is that we are hearing considerably less of our gastroenterostomized patients than we were three or four years ago, probably on account of better technic and a better selection of cases. Also more attention is paid to post-operative diet.

While the three Ps, Powders, Pump and Pap have gained considerable noteriety from a recently published paper, I believe that correct management to the best of our present knowledge should be tried in all post operative as well as non-obstructive ulcer cases and there has been no management suggested that would take the place of the one above referred to.

DR. L. G. ROWNTREE, Rochester: It is not an easy matter in some cases to decide between medicine and surgery in gastric and duodenal ulcer. As a rule, these cases at first are medical, and after they have had a number of "medical cures" they become surgical. After operation for gastric or duodenal ulcer a patient should be returned to the physician for medical treatment and care.

It is interesting to hear from Dr. Eusterman, first, that most of the recurrences occur within the first year, and, second, that a very large per cent of his cases exhibited hyperacidity after gastro-enterostomy. It seems to me that these facts indicate that medicine and surgery should get together in the handling of cases, since, in many cases subsequent to operation, the patient needs just the same type of medical treatment that he was subjected to in one of his former "medical cures". If, during the crucial year, adequate medical supervision were given these patients, I believe that, unquestionably, the ultimate results would be much better.

DR. R. E. FARR, Minneapolis: I have been interested in some work done by Coffey of Portland, Oregon, in relation to the possibility of trauma as a cause of jejunal ulcer, in which he recommends doing away with pressure in performing gastroenterostomy. It seems to me that is an important point. When we put on clamps I think we would find necrotic areas in the mucous membrane, if the intestines were opened. Whether or not there is anything in the selective action of bacteria, as brought out by Rosenow, I do not know, but we certainly do, by the use of clamps, produce an area of lessened resistance and, if these bacteria have a selective action, we have good reason to believe they may locate there.

My notion is that a large number of patients are gastroenterostomized that should not be. I believe that gastric ulcer is going to be found to be largely a medical condition which can be cured without surgery. In following Dr. Sippy's work very closely, by visiting his clinic and being associated with his assistants, the point has been forcibly impressed upon my mind, that we should judge a method of treatment by the very best fruit it will produce. The cases of ulcer which have been cured by this management are so numerous now that there is surely a great deal in the treatment. In the first place, all these patients become better, symptomatically, at once, and quite a percentage of them surely get symtomatically well. The fact that the treatment is not properly carried out, and we have recurrences, makes no difference. We must judge this method of management by its best fruit. If cures can be accomplished now, the future will improve the results.

Another point I would like to make, as brought out by Dr. Rowntree, is that every gastroenterostomized patient should receive the benefit of this management from men who are willing to familiarize themselves with it.

We have, in our work, reduced the number of cases upon which we operate—cases in which we have made a positive diagnosis of frank ulcer—to

cases of hemorrhage, cases of obstruction, cases which are possibly in the malignant age and stage (and that is the weakest point in the argument I am just making), cases which do not respond to proper management and to cases of perforation.

DR. J. W. ANDREWS, Mankato: I want to subscribe to what Dr. Farr has just said about these ulcers. A few years ago I felt that if I had to deal with a gastric or duodenal ulcer an operation was indicated and I did it unless it were refused. In later years I have changed my mind very materially, and I believe these cases are very largely medical.

Let us analyze some of the things that have been said here this afternoon by the writer of the paper. In the first place, in an ulcer of the stomach there is usually a high acidity, and the stomach does not empty itself well because of that. Why? Because the secretions of the duodenum are alkalin, and when too strongly acid, gastric secretions are being thrown into the duodenum. The bolus of food is thrown back, there is rebellion. There is retention of food and gastric contents may be retained beyond the six hours, which is good evidence of ulcer. If gastroenterostomy is performed in a case like that, what is the result? It is not long before the same hyperacid condition obtains that obtained before operation, and after a patient has gone through with all this operative treatment and has been subjected to hospital care the same symptoms recur. I feel confident, after some experience with the treatment of these cases, that in a large majority of gastric and duodenal ulcers operation is not necessary, and I believe the time is not far distant when these cases will be turned over to the internist and not to the surgeon.

DR. GEORGE EUSTERMAN, Rochester (closing the discussion): I have very little to add except to say that in a measure the discussion has veered from the subject matter to that of the best method of treatment for gastric and duodenal ulcers. That I have frankly described some relatively rare causes for failure after operation for benign ulcer should by no means discredit an otherwise advisable and superior procedure.

There were many interesting observations made by those who have discussed the paper, which are really a happy supplement to the paper itself. From the standpoint of the internist I wish to state a few of my own convictons. Every patient with gastric or duodenal ulcer should have the benefit of proper medical management, especially the young person with a brief period of trouble. The reason that patients do not get results from medical treatment is that treatment is not sufficiently intensive and consequently it has fallen into disrepute both in principle and practice.

There are certain cases in which operation is indicated immediately, namely in the acute perforating cases, those with complications such as advanced pyloric obstruction, hour-glass deformity, probable malignant degeneration, and severe recurring hemorrhage. For social or economic reasons it is often essential that an operation be done, and finally, if medical treatment has failed consistently, or proper medical management is not available, surgery should be undertaken. Probably the quickest results are obtained in the hands of competent surgeons and by intelligent postoperative management.

The x-ray diagnosis was of value in 80 per cent of our own cases, and in about 55 per cent of the cases in which operation was performed elsewhere. Of course this means expertness and considerable familiarity with the method. The reason the x-ray diagnosis was so accurate in our cases was we knew what had happened before.

THE SELECTION OF SUB-STANDARD LIVES

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This subject is one which is of keen interest to all life insurance medical directors. Some of older and larger life insurance companies have been insuring sub-standard lives for a great many years. Other and smaller companies, in increasing numbers, are gradually entering into this field of selection. A sub-standard life is one which presents some impairment or group of impairments which render that life ineligible for insurance at standard rates but should not deprive the family of the insured of the benefits of such protection as life insurance affords.

Naturally the local examiner for a Company is, as it were, the connecting link between the applicant and the medical director. It devolves upon him to furnish to the company he represents, a true pen picture of the individual case as he finds it. Again, the surgeon who may have attended the applicant for some surgical condition is often asked to supply data, (upon request of the applicant) to complete this picture. Likewise the internist or family physician is asked to supply data in connection with questions involving past illnesses for which he may have attended the applicant. With all the facts thus accumulated before him, it is the function of the medical director to select or to pass upon the risk.

Prior to the time when statistics regarding the mortality among different classes of risks

were readily available, selection was necessarily largely based upon the personal experience or judgment of the medical director. But with the advance in knowledge of the mortality among the various classes of risks, it became necessary for the medical director to have some knowledge of these statistics which were compiled by the actuaries of the companies. While it is true that the basis upon which the prospect of life is valued, in the presence of some abnormal sign, is often a matter of guess work, still I hope to show that this is not necessarily so in the present day. Sir William Gardner in discussing the matter in relation to heart murmurs, states:—"Whether any data can be procured that will enable our successors to deal with cases of extra risk—*we have none,* and so deal with them either by loading or rejecting or shutting our eyes". This statement to some extent is true as a reference to any text book to ascertain the prognostic significance of certain signs will demonstrate; and this defect in our knowledge hampers us at every turn.

As has been well pointed out by Sir James McKenzie, many patients with such diseases as gastric ulcer or appendicitis recover without operation. There are nowhere to be found clear indications when to operate and when not to operate. Some surgeons would remove every suspicious appendix, because, though they recognize that some are without danger, yet being unable to distinguish them from the dangerous ones, they prefer that the patient should not run the risk. What is this but an acknowledgment that they cannot assess the value of symptoms? When such a surgeon says the symptoms are not sufficient to serve as a guide, he but deceived himself; the data is there, but he is unable to interpret it.

Necessarily applications received by any company on lives range from extremely favorable to very unfavorable and it must be determined in which intermediate group or given group the applicant belongs. It is, therefore, evident that standards must be adopted in order to properly classify these different groups of lives.

In 1907 the Association of Life Insurance Medical Directors, following a discussion upon "Medical Selection," formulated plans for a thorough study of the various types of *supposed* medical impairments. While still at work on this vast undertaking the Actuarial Society of America in 1909 proposed that a joint investigation between the two societies be made, since it was realized that much more could be accomplished by their united efforts than by each society separately. The results of the investigation made by these societies was termed "The Medico-Actuarial Mortality Investigation." In this investigation forty-four of the leading old line insurance companies of the United States and Canada contributed their mortality experience. This experience was taken from the years of 1885 to 1908 inclusive, a period of twenty-three years and it is a surprising fact that this experience covered *ninety-seven per cent* of the total insurance in force in the United States and Canada in 1885, while in the year of 1908 these companies had *ninety per cent* of the total insurance in force of this country and Canada. It will readily be seen that the material used in this investigation represented approximately *all* the business of these two countries. This investigation, known hereafter, as the "M. A." Experience is, therefore, regarded as a very valuable guide in the selection of risks for insurance. The results of this investigation provide a basis for action, based on the experience of the companies on insured lives. It must be emphasized that these classes, so described and studied, were composed of applicants who obtained insurance at standard rates and were, therefore, the best of their class; otherwise they would not have been accepted. No sub-standard lives or rated cases were included in this investigation except cases treated as sub-standard on account of family history alone. Those cases which were limited to endowment insurance were not considered as sub-standard. Had these cases been offered sub-standard insurance instead of standard insurance the mortality experience would have been heavier as the more favorable risks would have exercised self-selection against the company; some of those confident that they were good risks would have refused sub-standard insurance, thus leaving in the class those more definitely impaired and thus providing a heavier mortality.

Sub-standard lives are insured in either of the three following ways:

1. By advancing the age, thereby raising the premium.

2. By charging extra premiums or money extra, which practically amounts to the same thing.

3. By insuring on the "lien plan" that is, setting a lien against the insurance so as to scale down the insurance for a period of years. In practice the lien is usually heavy in the early policy years and decreases as the policy grows older.

Every risk for life insurance involves a consideration of the following factors: (1) build; (2) family history; (3) occupation; (4) personal history; (5) physical condition; (6) habits; (7) moral hazard.

The underlying principle in the selection of lives assumes that the average risk accepted by a company has a value of 100 per cent and the selector uses this as a basis either to add to or to subtract from, according to the factors entering into the case, the final value or rating to be determined and expressed with relation to that standard. It will readily be appreciated that the selection of the so-called borderline and sub-standard risks often proves a puzzling but most interesting study.

It is astonishing to note how many seriously impaired applicants can now obtain insurance if they are willing to pay the price. I have recently been informed that at least one old line company is now insuring applicants who have undergone operation for carcinoma.

In taking up for discussion the various medical and surgical impairments it will be quite obvious to you that it will be impossible for me to discuss more than a very limited number of these classes. A thesis might well be written on any one of the subjects of which I shall speak.

In the study of the M. A. Classification, seventy-six classes of medical impairments were investigated. Of these I have selected but seven. Unfortunately up to the present time very little of the experience of the companies writing sub-standard business has been accessible, though recently some very interesting information has been given out regarding certain impairments. It is understood that the companies writing business of this character are experiencing favorable results based on the excess mortality expected and charged for.

EXAMPLE OF RATING—AGE THIRTY

On the Ordinary Life Plan, an advance of 6 yrs. in age covers 150% Mortality, this increases the Premium..... $4.57

On the 20 Pay Plan, an advance of 7 yrs. in age covers 150% Mortality, this increases the Premium..... 5.19

On the 20 Year Endowment Plan, an advance of 10 yrs. in age covers 150% Mortality, this increases the Premium.. 3.23

I shall now proceed with the discussion of certain particular classes of impairments the first of which is syphilis.

SYPHILIS

It is generally conceded that syphilities may be safely insured, with the proper increase of premium, as soon as it is shown that they have undergone sufficient treatment, but owing to the incompleteness of luetic history in insurance examinations, the proper rating is difficult to assess as the applicant is usually hazy in his recollection of the time of the initial lesion. treatment and symptoms. Obviously a Wassermann test conducted as we would like it, is not available or practicable nor is it under our control; and even if it were applicable, it is of doubtful significance as the presence of a positive Wassermann test is not regarded as a sure evidence of syphilis nor its absence as removing the possibility of syphilis, especially of the latent form. Warting of Ann Arbor believes that syphilis as a latent infection is present in thirty per cent of our population.

Death is rare in the first and second years after infection but increases progressively with the years and is particularly evident between the fortieth and sixtieth years, the presence of syphilis being masked by myo-cardial, vascular, renal or hepatic symptomatology.

There has been a tendency to regard applicants who have been treated with salvarsan as being favorable risks for insurance. I believe that it has been found most disappointing in cases of tabes and cerebral syphilis and that false reliance has been placed upon it. We must, therefore, modify our views and prognostic enthusiasm and question whether modern methods of treatment will materially reduce

the hazard of this class. It has been stated that a Wassermann test has no greater value than to indicate that the person is at the time of negative reaction free from the *active* manifestations of the disease. In the consideration of this subject by the M. A. Experience the classes divided as follows, produce the following ratios of actual mortality to that expected on standard lives.

Before proceeding to quote the mortality ratios experienced I might digress for a moment to touch upon the basis upon which results were compared in the M. A. Experience. When a particular group is studied, the number of deaths to be expected in a group of such size and duration, experience is computed on the basis of the standard mortality table and such number of expected deaths is then compared with the number of deaths which actually occurred in the particular class, under consideration. For example:—If the expected deaths are computed as 100, and the actual number of deaths are 140, the ratio of actual to the expected mortality would be 140 per cent.

In the M. A. Study of Syphilitic history the classes divided as follows produced the following ratios of actual mortality to that expected in standard.

Syphilis surely thoroughly treated, two years continuous treatment, one year freedom from symptoms.

a—One attack between three and five years prior to application (small group not published) 139%

b—One attack between five and ten years prior to application (467 lives exposed for a total of 3138 years) 174%

c—One attack more than ten years prior to application (500 lives exposed for a total of 2855 years) 217%

Syphilis surely, not thoroughly treated and syphilis surely, no details of treatment. (There were but few cases of the first class, therefore, these two groups were combined.)

a—One attack between five and ten years prior to application (322 lives exposed for a total of 2776 years) 284%

b—One attack between five and ten years prior to application (491 lives exposed for a total of 4103 years) 212%

c—More than ten years prior to application (754 lives exposed for a total of 6184 years) 129%

The death rate from pneumonia, diabetes and suicide was much higher than normal in this class. From locomotor ataxia, paresis and paralysis combined, the death rate was five times the normal. A group of cases more recently studied by one company doing a substandard business shows a mortality of 135 per cent (possibly due to modern treatment). From the above experience it must be evident that syphilitics, generally speaking are poor risks no matter how thoroughly treated. It is also evident that the earlier they are insured the better the risk and it would seem advisable that all of these cases should be so written that the insurance is off the books by age fifty.

FISTULA IN ANO.

(With or Without Operation)

In considering this subject we are at once confronted with the question as to whether or not we shall regard fistula-in-ano as being tuberculous in origin. Authorities differ radically in this belief. Melcheior believes sixty per cent of fistulae to be tuberculous; Elting—ten per cent; Bach—five per cent and E. G. Martin of Detroit, reporting on a large series of fistulae which he has operated and followed with complete pathologic examination, says that real tuberculous fistulae possibly run five per cent, notwithstanding the general opinion among the laity and medical profession to the contrary.

It would seem to us if an applicant with a history of fistula, were of good build and weight, good family and personal history as regards tuberculous infection, a fistula following an acute abscess and readily healing with proper treatment, may be ignored.

Referring, however, to the M. A. Experience in this class, it would seem that our conclusions were incorrect as the death rate from tuberculosis of the lungs was several times the normal in this class. A further study, as regards the relation of underweight and fistula, shows a ratio of 134 per cent, nearly one-half of the deaths being due to tuberculosis. Following is a summary of the M. A. Experience:

One attack within two years of application 120%

One attack between two and five years of application 136%

One attack between five and ten years of application 100%
Combined ratio..... 118%

ALBUMIN AND CASTS

The companies generally are much more liberal at this time than formerly in the treatment of this class of case. It must be generally recognized that many applicants for insurance will show albumin transiently, due to some indiscretion in diet, excessive exercise, posture, etc., who have no pathological condition of the kidney. This is borne out by the experience of the companies as shown by the following data; and in view of the favorable experience as shown by this investigation, the companies generally are more liberal in their treatment of such cases since published reports of this investigation have become available. It is now a common practice of *conservative* companies to accept at standard rates an applicant giving a history of albumin in the past, who can now furnish two authentic specimens of urine for home office examination with negative results. (This applies only to applicants under thirty years of age.)

The M. A. Experience illustrates that applicants having on examination albumin in the urine without casts show a mortality of 131 per cent. One finding of albumin, no casts within two years of application, 103 per cent; a combined experience shows a total mortality of 113 per cent.

In the case of my own company I am applying the following rule. Cases showing a faint trace or a distinct trace to Heller's test:

Age thirty to forty-five rate for.. 115 to 125%
Age forty-five and over rate to cover ..... 140 to 150%

Two or three out of three or four or more specimens, the last negative:

Under age thirty..... 140%
Thirty to forty-five..... 160%
Forty-five and over..... 175 to 200%

History of albumin, a casual finding on previous examination, no record of treatment and one year or more past, now clear on two or three specimens, standard.

Either granular or hyaline, no albumin, three to five on a slide in two or more specimens, 125 to 150%; more than five casts, 175%, and over fifteen casts, doubtful.

Transient albumin with casts, one positive albumin, followed by two negative, three to five casts on a slide in two or more specimens, in young adults:

Under thirty..... 125 to 150%
Age thirty to forty-five..... 140 to 175%
Age forty-five and over..... 165 to 200%

Slight to distinct trace to Heller's test in two out of three or more specimens and three to five casts on a slide in two or more specimens:

Under age thirty..... 165 to 190%
Thirty to forty-five..... 185 to 210%
Forty-five and over..... 200 to 250%

If more than five casts add twenty-five points to preceding. It must be remembered that most of the companies require home office specimens so that specimens may be examined in their own laboratory in a uniform manner. Obviously it would be impracticable so to instruct local examiners in the use of home office methods as to obtain required uniform results.

SUGAR IN THE URINE

From a life insurance standpoint it is very difficult indeed, to make a distinction between diabetes mellitus and glycosuria, the reason for this being that it is impossible for the examiner to give sufficient study to a case to enable him to say upon one examination whether or not the applicant is a diabetic or is simply a glycosuric. It has been the common custom of most of the companies to decline cases giving a history of sugar within two years of application, unless there was proof that the glycosuria had passed away or that a mistake had been made in the original examination of the urine. It is quite evident, of course, that it is most difficult in these cases to know whether the applicant is on a diet or whether or not he may have shown sugar on previous examinations. It has been the general practice of all companies to decline cases where sugar was found on examination unless it was found in but one of several specimens; even such a case is declined if there be a history of sugar having been found in the past.

Glycosuria may entirely disappear for long periods only to recur. Such periods of latency cannot be adequately estimated and the causes assigned for benign glycosuria are often associated with the development of diabetis mellitus.

An analysis was made by one company of one

thousand cases, insured at standard rates, during a period extending from 1896 to 1915. In these cases sugar was found on more than one examination. The following results were obtained:

Age at Entry	Actual Deaths	Expected Deaths	Ratio
15-24 inclusive.....	52	50	104%
25-36 inclusive.....	97	65	149%
40 and older.....	41	24.6	167%

In cases of glycosuria the relative mortality appears to be not **less** at older ages of entry than at the younger, as has been generally believed, but actually **greater.**

INFLAMMATORY RHEUMATISM

This subject from an etiological standpoint has had the "call" in medical literature during the past five years. Considerable knowledge has been gained and many theories worked out and demonstrated, attempting to attribute the cause of this malady to a specific organism whose chief habitat seems to be the tonsils, or if the tonsils are innocent, the teeth. Thus has followed a wholesale sacrifice of tonsils and teeth. Whether or not these measures will ameliorate this dreaded incapacitating disease and its serious sequelae (endocardial and myocardial disease), remains to be seen. Judging from clinical experience it would seem that we should expect a favorable mortality in applicants who have undergone a tonsillectomy.

The question arises as to whether an applicant giving a past history of inflammatory rheumatism should be considered a standard risk. It is my feeling that most physicians who have treated inflammatory rheumatism and its sequalae would hesitate to say that they could be so regarded. In the first place there is the very common complication valvular heart disease, and then again a tendency to recurrences of attacks which seem eventually to affect the heart. It is surprising, however, to see what a favorable mortality the companies have experienced in dealing with this class of risks. Again it must be emphasized that in this group only the most favorable cases were accepted and doubtless many of these cases which were *called* "rheumatism" were sciatica, various forms of arthritis, lumbagoes and other clinical conditions which could not be classed as true rheumatic fever.

The companies' experience covering a large number of cases shows the following ratios of actual and expected deaths.

A—One attack within two years of application 120%
B—One attack between two and five years prior to application..... 121%
C—One attack or more, the last within two years of application..... 123%
D—Two or more attacks, the last occurring between two and five years prior to application..... 109%
E—One attack at an indefinite time in the past..... 108%

It is my feeling that there would be a danger in accepting at standard rates all cases showing a history of inflammatory rheumatism irrespective of the time and duration of the attack and it is our feeling that uncomplicated cases of rheumatism within two years should call for a rating of 150 per cent. After two years have passed, with no recurrences or complications, the case might be accepted at standard rates. Two or more attacks, the last within two years should be rated 175 per cent and upwards. The last attack between two and five years, 125 to 150 per cent; the last attack over five years ago, standard. Should the ascribed cause be removed, i. e., the tonsils, the rating may be reduced thirty points.

The effect of the heart complications in this class will be considered under the heading of "Heart Murmurs."

PLEURISY

Frank pleurisy is always under grave suspicion on account of the possibility of the infection being of a tuberculous nature. This is true of healthy persons as well as those in poor health. It is now generally believed that some sixty to eighty per cent of all pleurisies are tuberculous. It is therefore felt that a sufficient period of time should elapse after an attack before the acceptance of such a risk at standard rates.

Subjects developing empyema are, of course, of a more serious character and should be more carefully selected than a simple pleurisy, or those with pleuritic effusions, unless the empyema occurs as a complication of lobar pneumonia.

The Medico-Actuarial Experience divided pleurisies into but two classes:

I—PLEURISY OTHER THAN PURULENT

II—PLEURISY PURULENT

Class I—(A) One attack within two years of application, mortality ratio, 147%.

(B) One attack between two and five years prior to application, 146%.

(C) One attack between five and ten years prior to application, 113%.

(D) One attack more than ten years prior to application, 92%.

It will thus be seen that the more favorable cases were those which were accepted a considerable time after the infection took place. When the pleurisy occurred within five years of application the relative mortality in the first five policy years was higher than in the succeeding policy years and it was also distinctly higher at the younger, than at the older ages at entry. The death rate from tuberculosis was three times the normal expectancy. When pleurisy occurred between five and ten years prior to application, the death rate from tuberculosis was twice the standard, while if it occurred ten years prior to application it was normal.

Class II. The experience in this class showed six hundred thirty-six cases in which one attack of purulent pleurisy occurred within ten years of application. One attack within five years prior to application gave a mortality of 158 per cent. One attack more than five years prior to application, 104 per cent, which is practically a normal mortality.

It is to be hoped that in future analysis of this class a distinction will be made between pleurisy with, and pleurisy without effusion Whether, however, this will add anything to our knowledge is doubtful when we consider that in the groups studied, there is but 10 per cent difference in the first five insurance years between pleurisy non-purulent, and pleurisy purulent, the mortality of non-purulent pleurisy being 147 per cent; purulent, 158 per cent. It must be remembered also that these cases were the most favorable of their kind being most carefully selected.

In the light of our present knowledge it seems reasonable to regard all cases giving a history of pleurisy whether purulent or not, if within five years, as being sub-standard and requiring a rating of at least 150 per cent. This would be, theoretically, a proper procedure but it is not a practical one as the personal equation of the selector must necessarily vary and the standard of the mortality to be maintained, combined with business consideration seems to preclude the adoption of any such uniform plan.

HEART MURMURS

In the preceding groups presented we have dealt mainly with those lives which were regarded as standard and accepted as such. This experience should and does serve as a guide in our present selection of risks. In considering the group comprising heart murmurs we must at once consider these as strictly sub-standard. It includes only risks with single heart murmurs and without other impairments, except as otherwise referred to.

This is a study of the mortality experience of the New York Life made by Dr. O. H. Rogers on certain male risks regarded as sub-standard by reason of heart murmurs. This study included only those cases having no impairment other than the presence of a heart murmur. Where a slight irregular or intermittent pulse was shown with heart murmur, it was regarded as an expression of damage to the integrity of the heart.

Making due allowances for variations such as doubtful murmurs or questionable findings which would occur in any medical group studied, this experience should be of interest to scientific physicians as well as to medical directors.

In life insurance work the valves of the left side of the heart are of most importance as they are most frequently affected and are, therefore, of greatest interest. In order to obtain as definite a picture as possible of the existing condition a "heart blank" was employed. This was filled out by the examiner and in addition to a written description of the condition present, indicated graphically the location of the murmur and degree of cardiac enlargement, if any. This served the double purpose of stimulating the examiner to do his best, and also, enabled the company to estimate the value of his work.

Mitral regurgitant murmurs were subdivided into 7,025 cases showing mitral regurgitation

without hypertrophy, and 1,282 cases showing mitral regurgitation *with* hypertrophy.

MITRAL REGURGITATION WITHOUT HYPERTROPHY

Age at Entry	Actual Deaths	Expected Deaths	Ratio
15-29	135	79	171%
30-39	148	73.5	210%
40 and over	121	71	170%
	404	223.5	181%

Of these 149 or 37 per cent of the total deaths were directly attributed to organic heart disease. In a corresponding group of standard risks, the number of deaths from organic heart disease would be fifteen. The death rate from heart disease was ten times normal.

MITRAL REGURGITATION WITH HYPERTROPHY

Age at Entry	Actual Deaths	Expected Deaths	Ratio
15-29	41	19.5	211%
30-39	37	14.5	255%
40 and over	28	13.1	214%
	106	47.1	225%

Forty per cent of the total deaths were from organic heart disease. The death rate was fourteen time the normal.

MITRAL REGURGITATION WITH RHEUMATIC HISTORY

Unquestionably the belief that heart disease which accompanies or follows an attack of rheumatism is a very serious impairment is borne out by the experience of Dr. Rogers who shows that in a group of 1528 lives with the above impairment, a mortality of 300 per cent was experienced. Those where a hypertrophy was added showed a mortality of 455 per cent; seventy per cent of deaths were from organic heart disease a death rate *thirty* times that which would have occurred in standard lives.

AORTIC REGURGITATION

Owing to the recognized seriousness of this lesion but few cases were accepted. The 560 policies with 96 deaths gave a ratio of 440 per cent. Of these 180 cases with *hypertrophy* showed 600 per cent.

AORTIC OBSTRUCTION

Three thousand two hundred and eight policies with 227 deaths gave a ratio of 179 per cent. Thirty-two per cent of those deaths were due to heart disease. It was necessary to include in this class, cases with other impairments such as tuberculosis in family history, history of dyspepsia, etc. It was felt that this group must have included some cases of functional heart murmurs to have obtained such a favorable mortality as this.

FUNCTIONAL HEART MURMURS

There were 2622 cases in this group; average age was twenty-nine as functional murmurs are more frequent in young.

Age at Entry	Actual Deaths	Expected Deaths By M. A. E.	Ratio
15-34	54	56	96%
35 and over	34	21	162%

It would seem from the above experience which is a careful study of 15,000 cases of heart murmurs, that we have had an index as to how acceptable are cases having these impairments. These deal with men in all occupations, walks of life and surroundings and gives us a "yardstick" with which to measure our prognosis by actual experience which could not be obtained in any other manner.

It may not be immediately apparent to you in just what respect such a discussion as this concerns you, as clinicians. Medicine as a science has in the past fifteen or twenty years made remarkable progress. This is particularly true in the field of diagnosis. Introduction of new instruments of precision such as the sphygomomanometer, and new methods such as the use of the roentgen rays in the diagnosis of diseases of the vital organs such as the heart, lungs and the gastro-intestinal tract, are refined procedures of technique as are the various tests for blood sugar, which have made possible a nicety in diagnosis which has previously been unknown, indeed, hardly dreamed of. Progress has also been made, through careful experimentation aided by the collection and analysis of data from various laboratories, in the field of treatment. Procedures are daily being carried out in the hospitals as well as in private practice which a few years ago were considered revolutionary.

Of the field of *prognosis,* however, as much unfortunately cannot be said. Too often our prognosis in a given case is based on an indefinite belief which is very often greatly modified by our hopes. It must, of course, be recognized that exactness of prognosis in a given case is impossible. But we should be able eventually to foretell with reasonable accuracy the future

of the average case in many diseases. That this condition is greatly to be desired will not be denied and that such prognostic ability will add greatly to the peace of mind of the physician as well as of his patient, will not be questioned.

Life insurance, both as a business and as a science, rests upon analysis of past experience and must in the nature of the case, to a considerable extent, resolve itself into an effort scientifically to forecast the future of life.

Few individual practitioners see enough cases to enable them to compile conclusive statistics. Moreover, the individual physician in a large number of his cases entirely loses track of his patient upon the subsidence of the acute condition for which he was consulted. Accordingly, we must depend upon statistics collected from such a source as the files of an insurance company for reliable knowledge of the influence of the various diseases and conditions upon the longevity of the individual. I have, therefore, felt that it is worth while to present to you this glimpse of the field of sub-standard insurance in the hope that it will give you a conception of the possibility of issuing insurance to the impaired individual.

I am sure that you will appreciate much more intelligently the close relationship which exists between the physician or surgeon who has treated an individual and the insurance company which is endeavoring to issue to that individual the most favorable policy possible. As examiners, your relationship is even more intimate, since upon the accuracy and completeness of the examiner's report, the company must largely base its action.

That everyone, who may safely be insured shall have insurance, is the ideal of the life insurance companies. Since the fundamental ideal of life insurance is protection for those who would, otherwise, be dependents, it is, therefore, not only in a sense, a duty, but should also be a pleasure to a physician to assist quate treatment from insurance companies.

THE WORK OF THE ROCKEFELLER COMMISSION IN FRANCE*

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The World War created a situation unprecedented in medical and sociological investigation, by permitting a social and medical experiment to be tried on virgin soil, so far as tuberculosis work was concerned. France, sorely beset by war conditions, was in no position to take up the question of tuberculosis and it was the opportunity and privilege of America, through the Rockefeller Commission, to step in and make a start on a large scale toward the solution of this problem.

As outlined from a preliminary survey, the Commission (headed by Dr. Livingston Farrand) decided to attack the problem as follows:

I. Legislative measures.
II. Educational.
III. Demonstration centers.
IV. Direct relief, in conjunction with the American Red Cross.

The legislative side of the work was begun by creating a sentiment for a law for compulsory registration of cases of active tuberculosis. As you will all remember, the early attempts to make similar state laws in this country were fought bitterly by medical men of myopic vision. The proposition was attacked as bitterly in France, but thanks to the courage of an enlightened group of medical men, aided by the efforts of Clemenceau, this measure was introduced in the Chamber of Deputies in January last, with highly probable chance of adoption. This measure, efficiently applied, will of course be the foundation stone of the permanent tuberculosis work in France. The focal areas will be discovered, an accurate death rate compiled, and the remediable and preventive forces more efficiently applied. Further legislative work included the organization of all health forces operating in France under one control.

The educational work was under the direction of Dr. Selskar Gunn and was divided into

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several groups. A traveling equipment consisting of auto truck, with cinema, a French director and adequate help, would permit each village or town to be well advertised of the object and purpose of this work. A meeting would be called and in conjunction with the city officials, interesting talks on public health, illustrated by clever health films, would be given. The following day, a meeting would be held with the local doctors and a tentative dispensary service commenced. The Commission would usually pay the original cost of the dispensary and equipment and the running expenses for the first year. The Commission also furnished a French nurse, trained in the American dispensaries in Paris.

The demonstration centers furnished an important part of the general medical scheme. This work was in charge of Dr. James A. Miller, later assumed by Dr. Bernard Wyatt. These centers were placed in the 19th Arondissment (or ward) of Paris, and in the Department of Eure et Loire an average agricultural section of France (France is divided into departments, similar to our State divisions). In Paris this ward had a population of 250,000 with a death rate of 469. This was not the worst ward in Paris. The 12th Arondissment had a death rate of 532. In the 19th Arondissment, three model dispensaries were opened, with a central laboratory. Later a large central dispensary was opened with x-ray, dental, nose and throat departments and a complete laboratory. American doctors were placed in charge of these dispensaries, with a chief nurse, and French girls were admitted as students. Later, as the work progressed, French doctors replaced the American personnel and the dispensaries were taken over by the municipality. The most important feature of the dispensary work was the training school for nurses. France had no trained nurses and the innovation did a great deal to break down the prejudices which had formerly kept the better type of French girls from engaging in nursing. In the department of Eure et Loire, a different scheme was followed. Here a central dispensary was started in Chartres, the capitol of this State; then three branch dispensaries in the three larger towns, and 15 branch dispensaries in the small villages. By means of autos, one day a week was devoted to each dispensary, the health nurses working on other days by visiting homes, giving advice, and following up cases. The service rendered by these young French girls was extremely valuable and a large degree of the success of the work depended on the personality of these young women.

At the commencement of the work, the great difficulty encountered was the hospitalization of the advanced cases. France had converted all available hospitals, schools and barracks into military hospitals. By making arrangements with the authorities, the poor farm was utilized, later a departmental sanitorium was started at Chartres, and at the end of the war, the local hospitals allowed a certain number of beds for these cases. The hospitalization resources were divided into three groups:

I. Those for advanced cases.
II. Those for curable cases.
III. Day camps, or preventoria for children infected but not actively tuberculous.

The entire scheme was linked up with the laboratory, x-ray and nose and throat service. When the organization was complete, the American personnel was replaced by local French physicians and the entire work turned over to the departmental officials, under control of the ministry of Health, under a subsidy granted by the Rockefeller Foundation.

An important part of the medical work as embodied in the nursing and medical service, was the active educational program carried out simultaneously. By means of health crusades, public lectures, booths at fairs, the churches, the health conscience was awakened and when that took place, opposition disappeared and the success of the work became manifest.

The active relief work, in conjunction with the American Red Cross, was in the form of financial aid for the tuberculous families, such as food, clothing, drugs, etc., and did a great deal to show the French we were ready to give more than advice.

The outcome of the work cannot of course be estimated at this time, but before I left France, a year ago, many departments were adopting the plan as outlined and worked out by the Commission. The medical work of the Commission was taken over by Dr. Kuss, one of the best known medical men of Paris. The

French physicians were thinking of tuberculosis in terms of prevention rather than the hopeless attitude evinced by physicians not many years ago. The interesting part was the effort to project a scheme worked out along the lines found the best by American and English workers. Apparently, France accomplished in four years what it took America twenty years to do. However, this is not absolutely true, since the French public mind is not so alert to public health problems as is that of America; but a few years more will give to France a decreasing death rate that will compensate in no small degree for her losses in the Great War.

America will never have need to regret her work in France along health lines. Disease is international. The high tuberculosis population of France was of vital interest to America. The intermingling of our soldiers with foreign soldiers and civilians did a great deal to increase the tuberculosis ratio among our soldiers. We are now seeing that in spite of rigorous examinations, tuberculous civilians were admitted to military service, or else a certain number of them were infected on foreign soil.

The resumption of immigration to America will bring into this country a group of people with latent tuberculosis, directly affecting the health and welfare of us all. The importance of the International Red Cross program is then brought home to us all and we are today realizing that politically, hygienically and socially, America can no longer hold the old idea of isolation among nations. The health question of itself shows the fallacy of such an argument.

A STUDY OF THE HEREDITARY FACTORS OF EPILEPSY

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Practically every person afflicted with epilepsy wishes to know if the disease is inherited, and if it will be passed on to the next generation. The question invariably is answered in the affirmative, although it may be difficult to determine the origin of the condition in any particular case.

Strumpell, Church and Peterson, Oppenheim, and others, have considered heredity a very important factor in the etiology of the disease. Dieulafoy passes the matter over by saying that true idiopathic epilepsy is often hereditary. These authors do not present statistics to prove their statements, while those taking opposite views give more or less data to substantiate their claims. Clark states that 20 per cent of epileptics present no evidence of hereditary taint, either epileptic or neuropathic, and that in most cases epileptics do not beget epileptics. This is confirmed by Starr. Gray is of the opinion that heredity is a factor in about one-third of the cases. Waters, who investigated thoroughly the results of marriage in twelve known epileptics found seven men to be the fathers of healthy children, one woman to have healthy children, one woman to have three children with epilepsy, and three women to have no children, showing transmission in one of nine marriages. Thom, in 1916, investigated the marriage of sixty-eight men and seventy women with epilepsy after having first studied their hereditary history. Direct heredity was found in seven instances; through the mother in three, and through the father in four; in one of the cases the transmission was both direct and indirect through the mother, maternal grandmother, and maternal great grandmother, four generations. Five and eight tenths per cent of ancestors had epilepsy. In the 138 marriages one person only with direct epilepsy heritage had epileptic offspring. Five hundred fifty-three children were studied. Ten children had convulsions, two in one family; six of the ten died in infancy. In 6.5 per cent of the patients the epilepsy was directly transmitted. Starr discussed the hereditary factors in 700 cases, and found epilepsy in a near relative in 136, or hereditary taint in 19.2 per cent of the cases. Echeverria, in 1880, studied 136 matings in epileptics, from which 533 children were born. Of these 195 died in infancy with convulsions and seventy-eight were living epileptics; the total epileptic offspring was reckoned at 273 (51.2 per cent). This is probably the very earliest source of the idea that there is a high degree of heredity in epilepsy. Echeverria considered an epileptic any child having a convulsion. Such an assumption is certainly not warranted among infants and

young children in whom the causes of convulsions are numerous.

The present study is composed of 128 cases of essential epilepsy that were observed in the Mayo Clinic during 1919. All the patients had normal or approximately normal blood pressures and negative Wassermann tests, and all had negative roentgenograms, in contradistinction to the 115 cases reported by McKennan, Johnston and Henninger, 80 per cent of whom showed bony changes about the sella. The examinations of the eye grounds were negative; in doubtful cases examination of the spinal fluid was made and found to be negative. In none of the cases was a cause for the convulsions found. Seven (5.4 per cent) of the patients had had convulsions when infants.

Ten and nine tenths per cent of the patients had a direct or indirect history of epilepsy in their families. One only had a child that was epileptic (Table 1).

TABLE 1

HEREDITARY FACTORS IN EPILEPSY NOTED IN 128 CASE HISTORIES TAKEN FROM GENERAL FILES

	Migraine	Insanity	Epilepsy	Not stated
Father	9	1	2	..
Mother	24	..	1	..
Sister	17	..	..	..
Brother	5	..	1	..
Both parents	6	..	..	..
Mother and grandmothers	2	..	..	..
Mother's uncle	2	..	1	..
First cousins	..	..	2	..
Mother's half brother	..	..	1	..
Great uncle	..	..	1	..
Mother's family with long history and many cases	..	..	1	..
Brothers and sisters	..	..	3	..
Father's second cousin	..	..	1	..
Aunts	4	2	..	..
Totals	69	3	14	42
	53.9%	2.4%	10.9%	32.8

Migraine was present before the onset of epilepsy, and alternated with or continued with epilepsy in eighteen (14 per cent) of the cases studied.

In comparing the sequential symptoms of migraine and those of convulsive epilepsy a striking similarity may be seen. It is frequently stated that migraine is capable of transmission by transformation, alternating with hysteria, epilepsy, and insanity. Hysteria was not recorded in the ancestry of any of the cases studied, and insanity was recorded but three times.

The relation of migraine to epilepsy has been particularly observed in the examination of patients in the Section on Neurology in the Mayo Clinic. In the case histories recorded in Table 2 definite notation was made of the presence or absence of migraine, whereas the histories taken from the files for Table 1 had been written before this study was made.

TABLE 2

HEREDITARY FACTORS NOTED IN 128 CASES OF EPILEPSY STUDIED IN SECTION ON NEUROLOGY

	Migraine	Epilepsy	No migraine nor epilepsy
Mother	34	1	..
Maternal aunt	1	..	..
Maternal grandmother	1	..	..
Mother and sister	5	2	..
Mother and one brother	3	..	..
Mother and maternal grandmother	2	..	..
Mother, one brother, and one sister	2	..	..
Mother, two sisters, and one brother	1	..	..
Mother and two sisters	1	..	..
Mother, four sisters, and one brother	1	..	..
Maternal grandmother, mother and aunt	1	..	..
Maternal uncle	2	1	..
Mother's half brother	..	1	..
Maternal cousin, mother, one brother, and one sister	1	..	..
Maternal grandfather	..	1	..
Maternal grandmother, mother, aunt and one sister	1	..	..
Maternal grandmother, father, and mother	1	..	..
Paternal grandmother and father	2	1	..
Paternal uncle and one brother	..	2	..
Paternal grandmother, father, and two brothers	1	..	..
Paternal grandmother and father	2	..	..
Paternal grandparents, father, and one brother	..	1	..
Father	7	1	..
Father and one brother	1	1	..
Father and mother	8	..	..
Father's second cousin	..	1	..
Sister	3	..	..
Brother	3	..	..
Daughter	1	..	..
Paternal grandmother	..	1	..
One uncle and one cousin	..	1	..
Nephew	..	1	..
Totals	85	16	27
	66.4%	12.7%	21%

Table 2 shows that 12.7 per cent of the patients had a direct or indirect history of epilepsy in their families. One only had a child who was epileptic.

Migraine was present before the onset of epilepsy, alternated with, or continued with epilepsy in thirteen (10.5 per cent) of the cases studied in Table 2.

Wilson is of the opinion that persons who suffer from migraine are frequently members of neurotic families in which epilepsy has occurred. Oppenheim states that a person who has suffered for a long time from migraine may become subject to epilepsy, an observation made in our series of cases. Vorkastner calls attention to an intimate relationship between migraine and epilepsy but fails to define the relationship. Litchy discusses the occurrence of migraine and epilepsy and urges further study of the subject. Mackenzie, however, is of the opinion that it is reasonable to assume

that there is no relationship between migraine and epilepsy.

The data in Tables 1 and 2 show a very clear relationship between migraine and epilepsy and no practical relationship to the so-called neuropathic diseases and insanity. The recorded low percentage of epileptics in the families of the patients warrant caution in telling patients that their children are very liable to epilepsy. Closer study should be made of patients with migraine, however, in order to determine whether they are the parent stock for epileptics.

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OBSERVATIONS IN EPIDEMIC CEREBROSPINAL MENINGITIS AT HOSPITAL CENTER, KERHUON, FRANCE

By Edward J. Engberg, M. D.
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Knowledge of the diagnosis and treatment of epidemic cerebrospinal meningitis was increased greatly by the experiences gained in dealing with the disease in army life, because of the wonderful opportunity afforded to study various epidemics under widely different conditions. It is hoped that this report, covering fifty cases, may be of interest in presenting the picture of an epidemic handled under unfavorable circumstances and in conveying some facts learned in detecting and treating these cases.

Base Hospital No. 65 took charge of the first hospital space to be opened at the hospital center at Kerhuon, about three miles from Brest, France, and was alone with the work until Base Hospital No. 105 arrived in early November. We came there on September 16th, 1918, and found that the hospital wards were not completed, there was nothing ready, in fact, except quarters for the officers and enlisted personnel. We were to operate as a sort of reservoir where the sick and wounded might be cared for until transports or hospital ships were available to take them home. The hospital was forced, however, on September 26th, to begin to receive influenza cases arriving from the States as all hospital space available in and around Brest had been filled to overflowing. This was three weeks before we were expected to open according to the plans and forced a tremendously difficult duty upon us. In a very few days we had about 1800 desperately sick men in our wards, with a total of about 18 medical officers available for ward duty. We had no paper for records, no sputum cups, practically no eating utensils, nothing for lights, except candles, but, fortunately, plenty of beds and warm blankets. There was a good source of supplies at the Quartermaster's depot, at Brest, and our needs were supplied as rapidly as possible. However, with each medical officer on ward duty in charge of about one hundred sick men, it was impossible to study cases carefully. There was also a corresponding

shortage of nurses and ward attendants. As a result of this lack of medical officers, and because of dealing with an influenza epidemic of such magnitude, which disease in itself was new to most of us, it is not surprising that many cases of unrecognized epidemic meningitis occurred. These patients were especially susceptible to meningitis as they were suffering from an influenza infection which lowered a resistance already weakened by a long ocean voyage on a crowded transport. Finally, it seemed that we were on the verge of a perfect deluge of these cases as we began to have deaths from meningitis in every ward almost, and most of these were unrecognized as such and mistaken for some unusual phase of influenza. On October 9th, the chief of Medical Service, Dr. F. M. Hanes, issued an order that any case of influenza which developed any unusual symptoms, should be reported to the Neurological Service at once for examination. It became my duty, as Neurologist of the unit, to assume charge of the detection of cases of meningitis, of the isolation of suspects, the care of contacts, and treatment of all active cases.

The plan adopted for handling the situation was as follows: One ward was set aside to care for all active cases; another ward to care for convalescent cases, which required no further active treatment, and a third was used to house the contacts—patients in beds immediately at either side of patient only were considered as contacts. Contact cases were released only after three consecutive negative nose and throat cultures. Dr. John E. Wine was assigned as assistant. He cannot be given too great credit for his faithful, efficient work in caring for patients and especially for the careful records he kept which helped very materially in making this report possible.

A ward had been established immediately upon the opening of the hospital in charge of a member of the Medical Service, to which cases diagnosed as meningitis had been sent, but he had not been able to treat these cases effectively as he had practically no means of sterilizing needles, and on account of the primitive facilities could only give intraspinous treatment. Thirteen cases had been admitted on which he had made a positive diagnosis of meningitis and of these only one lived.

Upon assuming charge on October 10th, we made a complete change in the plans of treating active cases, prompted by the reports of W. W. Herrick's work on epidemic meningitis at Camp Jackson, South Carolina, which we had read and discussed at one of the conferences of medical officers of our unit, shortly before we left for France. From October 10th to October 19th we were approximating the ideals set forth by Major Herrick as rapidly as we could become familiar with the cases which had been left in the ward by our predecessor—there were no records of diagnosis, conditions on admission, treatments, etc.—and as rapidly as we could accelerate the work by securing necessary apparatus for sterilizing needles and getting a sufficient supply of syringes, rubber tubing, etc. During this time, from October 10th to October 19th, out of 23 cases received 14 died. These were treated by intraspinous serum given regularly with as frequent doses intravenously as possible but this in rather small amounts at long intervals because of lack of working utensils. However, from October 20th to November 20th, of 14 cases, 2 died, and one of these from a complicating penumococcic meningitis and one from broncho-pneumonia. There may be some who will think this low rate for the last series of cases was due to a lessening of virulence of the organism but my impression from seeing the cases, from the beginning, is that the last ones were as virulent on the average as the earlier cases. All but two of the last series were admitted between October 20th and November 4th. The rest of the paper will describe how these cases were handled and draw a few conclusions from the observations made.

Upon receiving a request for consultation, the patient was seen in his ward at once and if suspicious only, a spinal puncture was made, the fluid sent to the laboratory, the patient isolated until a positive diagnosis was made either by the laboratory or by later clinical examinations. If the fluid came back cloudy, an intraspinous treatment was given immediately and the patient transferred to the meningitis ward. If the clinical examination alone made a positive diagnosis possible, the patient was given a hypodermic of morphia at once, transferred to the meningitis ward, (usually taking from fifteen minutes to half an hour), 1 cc of serum, given subcutaneously to determine sensi-

tiveness, followed by spinal puncture immediately and giving from 30 to 60 cc of anti-meningococcic serum after draining off a little more than that amount of the cloudy fluid. A specimen of this was always sent to the laboratory for examination to confirm the diagnosis and to act as a guide for further treatment. After about an hour, from 60 to 100 cc—usually 100 cc for first injection—of serum was given intravenously in concentrated form, heated to body temperature. Of this, the first 15 cc were given at the rate of about 1 cc per minute and the rest more rapidly. Most cases took this without trouble and those who could not take it at one time, could often take the balance after waiting from several minutes to an hour. In severe cases the intravenous injection was repeated at twelve hour intervals until the symptoms were under control and an intraspinous treatment was usually given at 12 or 24 hour intervals, depending upon symptoms for five or six treatments and then at greater intervals. We kept careful records of the objective and subjective symptoms and also a three hour record of the temperature and pulse as we found that after a treatment there usually was an immediate slight increase in temperature above that existing at the time of treatment followed by a fall due to the effect of antibodies in the serum, and this succeeded by a rising temperature again, which was considered as an indication that the antibodies administered had been exhausted and there was need for a further supply. The temperature curve, together with the change in subjective and objective signs served as our guide rather than any rule of so many hours between treatments and worked out very satisfactorily. The principle we insisted upon was that the first one and usually two or three doses must be large ones of serum (60 to 100 cc) intravenously, together or alternating with intraspinous treatments of from 30 to 60 cc preceded by drainage until pressure fell to about normal. On these last 14 cases, the average number of intraspinous treatments was 6.3, with average amount of serum of 231.4 cc; of intravenous treatments 7.9, with average amount of serum of 245.9; and a total average of serum of 477.3 cc. The figures indicating size of intravenous doses are misleading as it would seem that the average intravenous dose was very small. This is incorrect, as practically every primary intravenous dose was at least 60 cc, usually 100 cc in virulent cases and this amount was usually followed a second time. The following doses, if any, were small, under the assumption that it would keep the infection under control. The probabilities are that the first one or two large doses did all the work and we might have dispensed with the other late small doses. As Herrick says: "It is a common experience to have organisms disappear from the spinal fluid after the first or second massive intravenous serum injection. The laboratory workers made special remark of this fact when such treatment began to be used freely."

In addition to the serum treatments, morphia was used freely early to relieve suffering and general nursing care combined with an abundance of nourishment and liquids. After the work in the meningitis ward had been properly established, visiting medical officers from other wards, remarked upon the freedom from suffering that existed and upon the cheerfulness of the patients and attendants. Originally the meningitis ward had been used as a place of punishment to which attendants and nurses were assigned for disciplinary reasons, but after the work began to be done properly, nurses and ward attendants tried to remain there instead of being transferred after their period of service.

We learned early in our experience that certain patients were unimproved by our usual brand of anti-meningococcic serum but would respond well upon trying serum from a different manufacturer. We also learned that after several intravenous or intraspinous treatments, that instead of being benefited by the treatment, as had been the case formerly, certain patients had developed an intolerance and would become worse following serum treatments and would complain bitterly of an aggravation of all symptoms. We were convinced of the danger of further serum treatments in cases of this type after the death with signs of acute meningitis following about twelve hours after an intraspinous treatment, in a case where all symptoms had subsided except for a slight neck rigidity and in which the spinal fluid was normal except for increased pressure. In this

instance we decided to give the treatment just to be on the safe side in avoiding a recurrence of symptoms. Post mortem showed no organisms, but extreme congestion of vessels at the base of the brain with small hemorrhages in the sheathes of some of the cranial nerves. A few days later another patient developed an extreme intolerance to intraspinous treatment even while organisms were still present in the spinal fluid. This patient recovered without any complications by depending upon regular, frequent spinal punctures with drainage of fluid until pressure dropped to about normal. He would request that a puncture be made after his headache reached a certain severity and would always be relieved by the withdrawal of fluid.

The two essentials for the successful handling of these patients, in our opinion, were large intravenous doses, combined with intraspinous treatment, and early diagnosis. For this reason, we made special efforts to detect cases in the pre-meningitis state. This usually was not possible, strictly speaking, but many of the cases were detected at the time of the first examination before the spinal fluid was cloudy and before organisms could be demonstrated until at a later puncture. These patients usually had neither neck rigidity nor positive Kernig sign. It is unfortunate that we could not attempt to secure blood cultures as Baeslack found meningococci by blood culture early in 36.3 per cent of the cases at Camp Jackson. The three things that aided in diagnosis early were, in order of importance:

(1) Change in mental state characterized by drowsiness, lethargy, desire to be undisturbed, sometimes increased irritability.

(2) Occurrence of petechial hemorrhages, occurring in crops over the trunk or most frequently the extremities.

(3) Changes in neurological reflexes.

The change in mental state was a point emphasized upon ward surgeons indicating advisability for consultation to rule out meningitis in patients convalescent from any acute illness. The petechiae and changes in reflexes were depended upon particularly in making clinical diagnosis. Dr. James M. Northington suggested a practical point that helped us in determining whether certain petechiae were naturally present or not as is illustrated in the following case:

One morning one of the contact cases, whose first nose and throat culture two or three days before had been reported negative, complained of a sudden attack of pain in left chest, about 8:00 A. M. The case showed no evidences of meningitis when seen with a member of the Medical Service who found signs of lung consolidation beginning in region of pain. There were no petechiae on careful examination at first visit but at about eleven o'clock two or three small petechiae were found about the pelvic girdle. It was uncertain whether they were fresh or had been overlooked earlier and had always been there. A ring was placed around each by means of a skin pencil and upon returning immediately after dinner several more were found. There were no other signs. Puncture was made on the strength of this alone, the fluid was under pressure, but clear, though a later puncture showed cloudy fluid containing organisms. This patient recovered rapidly from evidences of meningitis with clearing up of the fluid after treatment, but developed in convalescence an empyema in which meningococci were demonstrated in the purulent exudate. Recovery followed drainage. In addition to petechiae, fulminating cases often had large areas of purpura; in fact, sometimes almost the entire body was covered by purpuric areas as large as a man's hand. Three of these cases were admitted to the ward a few hours after onset and two of them died before any treatment could be administered. In one of these cases no evidences of meningitis could be demonstrated post mortem. Evidently these cases are those of profound general sepsis.

The neurological reflexes were of particular value in making an early clinical diagnosis. The distinguishing point was the difference in character of the reflex on the two sides. Thus the reflex on the one side might be increased,—on the other side normal, decreased or lost. Usually there was an unequal exaggeration of deep reflexes. Herrick has pointed out from a study of the deep reflexes in early stages of acute diseases at Camp Jackson that increased reflex irritability was found frequently in a variety of infections, but that this increase was uniform except in cerebrospinal meningi-

In addition to the symptoms indicated, headache was usual, undue sensitiveness to all stimuli was frequent, temperature was the rule, though usually not high and with a relatively slow pulse for the temperature change.

The complications seen are such as to seem to prove conclusively that cerebrospinal meningitis is only a local manifestation of a general septicemia. In our series, we had one patient whose initial infection apparently was a panophthalmitis which was limited to one eye, but resulted in loss of its vision; 1 case with orchitis; 2 cases with arthritis and of these one was preceded, the other followed by onset of the meningitis; 1 case with otitis media, together with multiple arthritis; 1 of pleurisy with empyema; 3 developed bronchopneumonia. In addition to these complications, 1 case responded wonderfully to serum and on the third day became suddenly worse and it was found that a pneumococcic meningitis had replaced the meningococcic. Two cases had transient cardiac dilatation with recovery. One developed measles the second day after onset of the meningitis. Two cases of measles developed meningitis.

In closing, I should like to make a comparison of the last 14 cases treated at Kerhuon as they represent the best work done in handling that local situation, with the results in series reported by Donald J. Frick and by W. W. Herrick.

Frick reported the last 20 cases of the epidemic at Camp Beauregard with 17 recoveries, mortality rate 15 per cent. Average number of intravenous doses in recovered cases, 4.3. Average amount of serum 406 cc. Intraspinous average, 19.8 doses, 492 cc serum.

W. W. Herrick reported that of 137 cases treated by older method of intraspinal therapy alone, or combined with extremely small amounts, (from 10 to 45 cc. of serum intravenously) 47 died, a mortality of 34.3 per cent, while of 128 treated by the newly developed method, 19 died, a mortality of 14.8 per cent. He tried to sterilize the blood stream early in the infection by large doses of serum intravenously. Of 13 cases treated at Kerhuon before we took charge, by intraspinous doses alone, and these given irregularly, only one lived, mortality 92.3 per cent. Of the first 23 cases treated imperfectly by us, because of inadequate equipment, 14 died, a mortality of 60.8 per cent. Of the last 14 cases treated by the intensive method given in detail earlier in the paper, only 2 died, a mortality of 14.3 per cent. Of these 1 died from a complicating pneumococcic meningitis.

CONCLUSIONS

(1) Epidemic meningitis should be considered as a possible complication in any acute infection—particularly infections of the upper respiratory tract in children and young adults.

(2) The diagnosis of the infection is desirable and is often possible in the premeningitic stage.

(3) Adequate serum treatment consists in large intravenous doses of antimeningococcic serum, combined with intraspinous treatments.

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EDITORIAL

MINNESOTA STATE MEETING IN RETROSPECT

We state but the truth when we say that the meeting of our State Association held the last of September was the most interesting and the largest (627 registered) in our history. That such a large percentage of our membership (1,548) attended the meeting certifies to the value of such meetings in that they are stimulating to all who attend but more especially to those who take part in the scientific program. Politics were conspicuous by their absence.

The local society, Ramsey County Medical Society, made use of the meeting to celebrate their fiftieth anniversary with an unusually enjoyable amusement program following the banquet.

While the sections ran their programs in a business like way, we maintain that more snap would be shown if the section chairmen would exercise their prerogatives in cutting short, not only the discussions at the end of the allotted five minutes, but also distinct wandering from the subject. An incident occurred at the International Medical Congress in London in the Summer of 1913 which made a vivid impression on the writer, when Sir William Osler, Chairman of the Medical Section, suddenly interrupted an essayist and reminded him of his subject. If this firm supervision can be administered in an international meeting, it is practical in our State meetings among ourselves. Visitors from without the State should be allowed some leeway.

The House of Delegates made an effort to simplify the administrative work of the Association by combining in a single office the functions of Secretary and Editor and the employment of an Executive Secretary at full time to handle the details of both offices. This is a step in the right direction as bookkeeping is not distinctly medical work. As some one has said, "The proof of the pudding is in the eating."

Dr. C. Eugene Riggs of St. Paul was elected President; Dr. A. N. Collins of Duluth, First Vice-President; Dr. F. P. Strathern of St. Peter, Second Vice-President and Dr. R. C. Hunt of Fairmont, Third Vice-President; Dr. F. L. Beckley of St. Paul was reelected Treasurer and the Editor was elected Secretary as stated. These officers serve the calendar year 1921 and matters should be referred to the retiring officers until January first.

EPILEPSY AND HEREDITY

The study of epilepsy and heredity by Dr. Buchanan in this issue is interesting in the showing of a 10 per cent relation to migraine and in that it brings up the age old question of heredity and disease.

Heredity is the first drawer to the right in the medical shelf into which is dumped the explanation of the causation of disease when the real etiology is obscure or unknown; the further we advance in the knowledge of disease the less heredity is invoked. Tuberculosis was most firmly intrenched as the shining example of heredity as a cause and it required forcible means to dispel the illusion. Although epilepsy is caused by so many diverse factors, such as congenital defect of the brain, tumors, irritation of the cortex by depressed bone or hemorrhage, lesions of peripheral nerves, etc., there still remains a large number of cases (60 to 75 per cent) in which no cause can be predicated, and these we call idiopathic, another synonym for ignorance. Gowers estimated heredity as a factor in about 35 per cent of cases; he as well as most writers mean by heredity the occurrence of insanity, epilepsy, migraine, hysteria

in the antecedents; when we say that epilepsy is caused by any of these diseases in our antecedents or vice versa, are we not simply running around in a circle, as these diseases so closely related may be well caused by the same or closely related factors?

Spratling found in 1,070 epileptic cases, 16 per cent of direct epileptic heredity, about 15 per cent attributed to alcoholism in the antecedents and 14 per cent to tuberculosis. Both alcoholism and tuberculosis in the antecedents occur in just about the same percentage in any 1,070 individuals and has nothing more to do with the disease than the phases of the moon.

Until the essential mechanism of the so-called nerve cell discharge is made clear we will still grope blindly for an explanation—syphilis will appear oftener and oftener in the etiological class. —H. S.

RED CROSS DUES

The entire conception of the American Red Cross Society is typical of the ideal of American democracy. Originally organized as a means of adding medical assistance to the Army and Navy in time of war, it has become a leader in the International Society in the immensely broader character of humanitarian work entered upon. Instead of returning to its prewar status, the Red Cross determined to make use of its expanded organization and increased means in meeting existing evils. These activities include the assistance of thousands of victims of fire and flood, fighting of malaria in many infected localities throughout the country, typhus in Poland, tuberculosis in Paris and feeding children in Vienna.

Particularly happy was the idea of supporting the Red Cross primarily by membership dues. Last year ten million Americans made up the membership, each contributing one dollar apiece. This year they will undoubtedly renew their membership. What more truly American! And what more appropriate time for dues to become payable than from Armistice Day to Thanksgiving!

IMPROVEMENT IN HOSPITAL SERVICE

Every state medical association in the United States has its part in the present universal movement for the betterment of hospital service. Every association now has its own committee which is studying the hospital situation in its state in cooperation with the Council on Medical Education of the American Medical Association. The council has obtained, through reports, correspondence, and other methods, data relative to all hospitals in the country and each state committee has been supplied with the data relating to the institutions in its state. Through their closer familiarity with the hospitals, or by inspections the state committee is in excellent position to verify these data and to make a reliable report to their state association and to the council.

For convenience and in order to secure uniformity of reports from the forty-eight committees regarding the relative efficiency of hospitals, blanks furnished by the council call for a rating of all hospitals in classes A, B and C, grouped also according to the special class of patients cared for. This rating is not for publication but will aid the council in the preparation of a list of hospitals which are considered worthy of approval. These lists are subject to frequent revision so that names of other hospitals can be included as soon as sufficient improvements are made to warrant their being approved. State committees are urged to promptly report to the council any instances where such improvements have been made.

The purpose of the work is to aid the hospitals in providing for their patients the best possible service and in no way to injure those which are honestly endeavoring to provide such service. Toward this end, every possible assistance will be given to individual hospitals by the council or by the local state committee in establishing such changes as will make them worthy of approval.

Forty-two state committees have reported progress in connection with the latest survey and thirty-four have turned in reports regarding hospitals inspected and graded, which have more than half the entire bed capacity of all general hospitals in the country. Meanwhile, this work of the council is not conflicting with, or duplicating the splendid work being done by the American College of Surgeons, the Catholic Hospital Association, the American Hospital Association or other agencies. In fact the work

of each agency is evidently complementing that of the others.

At the New Orleans meeting, recently the House of Delegates of the American Medical Association registered an intense interest in the improvement of hospital service and authorized the trustees to generously provide for that work. This work has been so intimately related to that of the Council on Medical Education that the name of this council was changed to the "Council on Medical Education and Hospitals."

In brief, further enlargement of hospital work by the American Medical Association is assured and in this work each state is destined to have an important part. Toward this end each association is urged to make its hospital committee permanent and to retain on it those who will not only be active but who also can do the work in the most efficient and unbiased manner. Hospitals, at present, form the closest link between the medical profession and the public and the medical profession should do all it can to aid the hospitals to provide the very best service possible.

REPORTS AND ANNOUNCEMENTS OF SOCIETIES

SOUTHWESTERN MINNESOTA MEDICAL SOCIETY

The annual meeting of the Southwestern Minnesota Medical Society will convene at Pipestone on November 11, 1920. An exceptionally good program is in process of preparation. Dr. E. G. McKeown of Pipestone is President of the society and Dr. F. G. Watson of Worthington, Secretary-Treasurer.

ANNUAL MEETING SOUTHERN MINNESOTA MEDICAL ASSOCIATION

Auditorium Elks' Club
November 29-30, 1920
Mankato, Minnesota

MONDAY, NOVEMBER TWENTY-NINTH

The scientific program will begin at 1:30 o'clock, P. M.

Annual banquet at 6:30 o'clock, P. M.

Evening program at 8:00 o'clock, P. M.

TUESDAY, NOVEMBER THIRTIETH

Annual business session at 7:30 o'clock, A. M.

Scientific program at 8:00 o'clock, A. M.

Luncheon tendered by physicians of Mankato, Minn., 12:00 o'clock, M.

Scientific program at 1:00 o'clock, P. M.

Adjournment at 4:30 o'clock, P. M.

Physicians from outside of the state who will appear on the program are:

Dr. Hugh Cabot, Ann Arbor, Michigan.

Dr. Emil Beck, Chicago, Illinois.

Dr. H. Winnett Orr, Lincoln, Nebraska.

Dr. Reginald Fitz, Boston, Mass., now of Rochester, Minn.

Dr. Reuben Peterson, Ann Arbor, Michigan.

Dr. Truman W. Brophy, Chicago, Illinois.

Dr. E. B. Freemann, Baltimore, Maryland.

Dr. Harry E. Mock, Chicago, Illinos.

Dr. William L. Shearer, Omaha, Nebraska.

The official program will be announced October 20, 1920.

The attendance will be large, and it is imperative that you make reservations at once, giving name and full address. Ample and comfortable accommodations will be provided if reservations are made within reasonable time, by card, telegram or telephone, addressed to the chairman Committee of Arrangements, Dr. J. Theodore Schlesselman, Mankato, Minn.

PROGRAM

Dr. R. E. Farr, Minneapolis—Local Anesthesia and Surgical Technic (L).

Discussion—Dr. S. C. Schmitt, Minneapolis; Dr. Matt Cremer, Red Wing.

Dr. W. L. Benedict, Rochester—Treatment of Trachoma.

Discussion—Dr. Carl L. Larson, St. Paul; Dr. James S. Reynolds, Minneapolis.

Dr. Walter R. Ramsey, St. Paul—Recent Progress in the Diagnosis and Treatment of Congenttal Syphilis in Infants and Children.

Discussion—Dr. Frederick C. Rodda, Minneapolis; Dr. R. N. Andrews, Mankato; Dr. O. W. Roe, Duluth; Dr. Lyda Osburn, Mankato.

Dr. J. F. Corbett, Minneapolis—The Surgical Treatment of Spinal Cord Injuries.

Discussion—Dr. A. S. Hamilton, Minneapolis; Dr. A. W. Adson, Rochester.

Dr. W. A. Jones, Minneapolis—Atypical and Unusual Forms of Paralysis.

Discussion—Dr. Haldor Sneve, St. Paul; Dr. E. M. Hammes, St. Paul.

Dr. Wm. Carpenter MacCarty, Rochester;—The Relation of Chronic Hepatitis to Cholecystitis.

Discussion—Dr. Kano Ikada, Minneapolis; Dr. H. E. Robertson, Minneapolis.

Dr. Hugh Cabot, Professor or Surgery, University of Michigan, Ann Arbor, Mich.—Some Unsettled Problems in the Management of Renal Tuberculosis.

Discussion—Dr. Wm. F. Braasch, Rochester; Dr. Oscar Owre, Minneapolis; Dr. E. S. Judd, Rochester.

Dr. Emil G. Beck, Chicago, Ill.—Intentional Removal of Skin and Other Tissues Over-lying Deep Seated Inoperable Carcinoma for Effective Radium Treatment (L).

Discussion—Dr. Wm. Mayo, Rochester; Dr. A. S. Fleming, Minneapolis; Dr. Archibald MacLaren, St. Paul.

Dr. Reuben Peterson, Professor of Surgery, University of Michigan, Ann Arbor, Mich.—Experiences With Intraperitoneal Gas Injection and the X-Ray As An Aid to Gynec Ological Diagnosis.

Discussion—Dr. Albert F. Tyler, Omaha, Neb.; Dr. J. C. Litzenberg, Minneapolis; Dr. R. D. Carmen, Rochester.

Dr. E. B. Freeman, Professor of Medicine, Johns Hopkins University, Baltimore, Md.—Subject: "Spasmodic Stenosis of the Esophagus."

Discussion — Dr. Reginald Fitz, Rochester; Dr. Robert Rizer, Minneapolis; Dr. Frank Smithies, Chicago, Ill.

Dr. Harry Mock, Chicago, Ill.—A Few Examples of Reconstructive Surgery With After-Care.

Discussion—Dr. John Rischmiller, Minneapolis; Dr. Warren A. Dennis, St. Paul; Dr. Arthur A. Law, Minneapolis.

Dr. Henry W. Woltman, Rochester—Spina Bifida.

Discussion—Dr. E. M. Hammes, St. Paul; Dr. Arthur Strachauer, Minneapolis.

Dr. H. Winnett Orr, Lincoln, Neb.—Splints As a Factor in the Cure of Patients After Injuries to or Operations Upon the Spine.

Discussion—Dr. M. S. Henderson, Rochester; Dr. A. E. Wilcox, Minneapolis.

Dr. Truman W. Brophy, Chicago, Ill.; Dr. Wm. L. Shearer, Omaha, Neb.—Cleft Palate and Harelip Procedures, Illustrated.

Discussion—Dr. Gordon B. New, Rochester; Dr. Harry P. Ritchie, St. Paul.

Dr. Reginald Fitz, Rochester — The Phenolsulphonephthalein Test and the Nonprotein Nitrogen of the Blood in Chronic Nephritis.

Discussion—Dr. Hugh Cabot, Ann Arbor, Mich.; Dr. E. L. Tuohy, Duluth; Dr. L. G. Rowntree, Rochester.

Dr. Chas. H. Mayo, Rochester—Tuberculous Peritonitis.

Discussion—Dr. A. E. Spalding, Luverne; Dr. Hugh Cabot, Ann Arbor, Mich.; Dr. Ruben Peterson, Ann Arbor, Mich.

Dr. J. P. Schneider, Minneapolis—The Effect of Quinine Sulphate on the Liver.

Discussion—Dr. Arthur D. Hirschfelder, Minneapolis; Dr. H. Z. Giffin, Rochester.

Dr. John C. Staley, St. Paul—Subject: "Sacro-Coccygeal Dermoids."

Discussion—Dr. Fred Rankin, Rochester; Dr. E. M. Jones, St. Paul.

Dr. Wm. J. Mayo, Rochester—Hemolytic Ictherus.

Discussion—Dr. E. B. Freeman, Baltimore, Md.; Dr. Emil Beck, Chicago, Ill.; Dr. Frank Smithies, Chicago, Ill.

Dr. H. W. Meyerding, Rochester—Subject: "Delayed-Union and Non-Union in the Radius and Ulna."

Discussion—Dr. H. W. Orr, Lincoln, Neb.; Dr. Arthur D. Gillette, St. Paul.

Dr. H. C. Giffin, Rochester, President's Address—The Present Status of Splenectomy as a Therapeutic Measure.

Dr. Verne C. Hunt, Rochester—"Complications Attending Prostatectomy."

Discussion—Dr. Franklin Wright, Minneapolis; Dr. G. J. Thomas, Minneapolis.

Dr. Henry S. Plummer, Rochester—Subject: "The Relationships of Essential Hypertension and Hyperthyroidism."

Discussion—Dr. C. H. Mayo, Rochester; Dr. E. B. Freeman, Baltimore, Md.

Dr. Arthur D. Hirschfelder, Minneapolis—Subject: "Saligenin, A New Non-Toxic Local Anesthetic, and Its Mercury Derivative, A New Antiseptic."

Discussion—Mr. D. Siperstein, Minneapolis; Mr. M. Litmann, Minneapolis.

Dr. Frank Smithies, Chicago, Ill.—Subject: "Non-Surgical Drainage of the Billiary Tract: Its Diagnostic and Therapeutic Possibilities."

Discussion—Dr. W. J. Mayo, Rochester; Dr. Emil Beck, Chicago, Ill.

Dr. Chas. Lyman Greene, St. Paul—Subject: "Pitfalls in the Treatment of Heart Disease."

Discussion—Dr. F. S. Bissell, Minneapolis; Dr. E. T. F. Richards, St. Paul.

NEW AND NON-OFFICIAL REMEDIES

During September the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Non-official Remedies.

United Synthetic Chemical Corporation:

20 per cent Aromatized Suspension made from Benzyl Benzoate (Van Dyk & Co.)

The Heyden Chemical Works:

Proganol.

OFFICIAL ARTICLES NOT WITHIN THE SCOPE OF NEW AND NON-OFFICIAL REMEDIES:

Capsules Folia-Digitalis (Upsher Smith).

Tincture of Digitalis (Upsher Smith).—These products are sold by Upsher Smith, St. Paul, Minn. The Council finds that they have the status of official articles and are, therefore, not within the scope of New and Non-official Remedies.

NEW AND NON-OFFICIAL REMEDIES

Sodium Arsphenamine. — Sodium Arsenphenolamine.—The sodium salt of 3-diamino-4-dihydroxy-1-arsenobenzene with a stabilizing medium. The arsenic content of three parts of sodium arsphenamine is equivalent to two parts of arsphenamine. Sodium arsphenamine has the same actions and uses as those of arsphenamine; its advantage over arsphenamine is that it does not require addition of alkali before use. To prepare the solution the sodium arsphenamine is added to the required amount of sterile water and dissolved by gentle agitation.

Sodium Diarsenol.—A brand of sodium arsphenamine. Sodium diarsenol is marketed in ampules con-

taining 0.15 Gm., 0.3 Gm., 0.45 Gm., 0.6 Gm., 0.75 Gm., and 0.9 Gm., respectively. Diarsenol Laboratories, Inc., Buffalo, N. Y.

Corpus Luteum Tablets—Armour 5 grain.—Each tablet contains 5 grains of desiccated corpus luteum—Armour (See New and Non-official Remedies, 1920, p. 203), (Jour. A. M. A., Sept. 18, 1920, p. 815).

PROPAGANDA FOR REFORM

The following products have been the subject of prosecution under the Federal Food and Drugs Act: Beecham's Pills were held misbranded because the curative claims made for them were false and fraudulent, and because the pills were not made in England as claimed. Pike's Liver, Kidney and Stomach Remedy, because the therapeutic claims were false and fraudulent. Ergot Apiol Compound (Evans Drug Co.), because the capsules did not contain the claimed amounts of drug and because they were an imitation. Prescription 1000, sold in two forms, a copaiba preparation for internal use and a dilute potassium permanganate solution for external use, was sold under false and fraudulent therapeutic claims. Rival Herb Tablets were tablets falsely claimed to be chocolate coated and sold under false and fraudulent therapeutic claims. Wilson's Solution Anti-Flu consisted essentially of oil of eucalyptus, methyl salicylate and thymol or oil of thyme, and was falsely claimed to be effective as a remedy for influenza, colds and grippe. Castor Oil Capsules (Evans Drug Co.), did not contain the amount of drug claimed (Jour. A. M. A., Sept. 4, 1920, p. 690).

Prevention of Goiter.—The latest report on the prevention of goiter by administration of sodium iodid by Marine and Kimball—an investigation carried out under a grant from the Therapeutic Research Committee of the Council on Pharmacy and Chemistry—indicates a striking difference between those girls not taking and those taking iodin. The difference is manifested both in the prevention of enlargement and in a decrease in the size of existing enlargements. Of 2,190 pupils taking 2 gm. of sodium iodid twice yearly, five have shown enlargement of the thyroid, while of 2,305 pupils not taking the prophylactic, 495 have shown enlargement of the thyroid. Of 1,182 pupils with thyroid enlargement at the first examination who took the prophylactic, 773 thyroids decreased in size, while of 1,048 pupils with thyroid enlargement at the first examination who did not take the prophylactic, 145 thyroids decreased in size (Jour. A. M. A., Sept. 4, 1920, p. 674).

Lyko.—This is an alcoholic tonic which has been widely advertised in the newspapers. It is put out by the Lyko Medicine Co., Kansas City, Mo. Lyko is claimed to stimulate the appetite, tone up the digestive organs and to have laxative qualities. It is said to contain caffein, kola, phenolphthalein and cascara sagrada. The advertising does not discuss the most powerful ingredient, alcohol, although the label declares the presence of 23 per cent of this drug. As a result of an exhaustive examination, the A. M. A. Laboratory concludes that Lyko is essentially a sweetened solution containing about 22.2 per cent of alcohol together with insignificant amounts of caffein, cascara extractives and phenolphthalein. There was no evidence to show that the product is sufficiently medicated to prevent its being used as a beverage (Jour. A. M. A., Sept. 11, 1920, p. 757).

Nature's Creation.—This is one of the fake consumption cures. It was originally put on the market as an absolute cure for syphilis. When analyzed in the A. M. A. Laboratory it was found to be essentially a solution of potassium iodid in a weakly alcoholic medium containing vegetable extractives and flavoring matter, and small quantities of inorganic salts (Jour. A. M. A., Sept. 11, 1920, p. 758).

Iodex, A Misbranded Iodin Ointment.—(1) Claim: 5 per cent iodin. Finding: iodin content only about 3 per cent. (2) Claim: free iodin. Finding: no free iodin. (3) Claim: absorbed through the skin, iodin can be found in urine 30 minutes after inunction. Finding: the assertion that iodin can be found in the urine after Iodex has been rubbed on the skin has been experimentally disproved. The preceding is taken from a poster of the A. M. A. Chemical Laboratory at the A. M. A. New Orleans meeting (Jour. A. M. A., Sept. 18, 1920, p. 830).

Diabetic Foods.—A report from the Connecticut Agricultural Experiment Station on diabetic foods includes not only the content of carbohydrate in these products but also that of protein and fat in view of the recognized necessity of taking into account all of the nutrients in any proper formulation of regimen for the diabetic patient. There is no satisfactory definition of what a diabetic food is, nor is there any universal diabetic food. The value of accurate information regarding the makeup of such products as may find special application in the dietotherapy, such as given in the Connecticut report, lies in the fact that it enables clinicians and the patient to proceed intelligently in the direction of diet planning with a view to tolerance of all the nutrients. Of particular interest in the report are the analyses of bran, which is being widely used at present to give bulk to the food residues in the alimentary canal. It appears that common, unwashed bran frequently contains no more than half as much starch as some of the advertised brands of "health" bran (Jour. A. M. A., Sept. 18, 1920, p. 818).

Calcidin Tablets—Abbott.—Calcidin is claimed to be a mixture of iodin, lime and starch. In contact with water, the iodin and lime react to form calcium iodid and calcium iodate. By the acid of the gastric juice, the calcium iodid and calcium iodate are decomposed with liberation of free iodin. The administration of calcidin tablets amounts to giving free (elementary) iodin. The effects produced by the administration of free iodin appear not to differ from those produced by the administration of iodids, and, therefore, calcidin has no advantage over the iodids,

such as sodium iodid (Jour. A. M. A., Sept. 25, 1920, p. 892).

Some Misbranded Venereal Nostrums. — The following preparations have been the subject of prosecution by the federal authorities under the Food and Drugs Act on the ground that the therapeutic claims which were made for them were false and fraudulent: Injection Cadet (E. Fougera & Co., New York), a dilute watery solution of copper sulphate and unidentified plant material. Knoxit Injection (Beggs Manufacturing Co., Chicago), a solution of zinc acetate with alkaloids of hydrastis, in glycerin and water. Knoxit Liquid, a solution of zinc acetate with alkaloids of hydrastis, in glycerin and water. Knoxit Globules, essentially a mixture of volatile and fixed oils and oleoresins, including copaiba balsam, cinnamon and cassia. Grimault's Injection (E. Fougera & Co., New York), a weak watery solution of copper sulphate and plant extractives, probably matico. Halz Injection (Edw. Price Chemical Co., Kansas City, Mo.), consisting essentially of zinc sulphate, boric acid, glycerin, traces of alum and formaldehyd and water. Tablets which seem to go with the product consisted essentially of calcium and magnesium carbonates, copaiba, a laxative plant drug, plant extractives, a small amount of an unidentified alkaloid, sugar and starch. Noxit (Frederick F. Ingram Co., Detroit), consisting essentially of opium, berberine, a zinc salt, glycerin, alcohol and water. Crossmann Mixture (Wright's Indian Vegetable Pill Co., New York City), essentially an alcoholic solution of volatile oils, including balsam copaiba and cubebs. Santal-Pearls (S. Pfeiffer Mfg. Co., St. Louis, Mo.), consisting essentially of a cinnamon-flavored mixture of santal oil and copaiba. Cu-Co.Ba-Tarrant (Tarrant Co., New York City), consisting essentially of a mixture of extract of cubebs and copaiba with magnesium oxid. Hygienic and Preservative Brou's Injection (E. Fougera & Co.), consisting essentially of acetates and sulphates of zinc and lead, morphin, water and a very small amount of alcohol (Jour. A. M. A., Sept. 25, 1920, p. 891).

OBITUARY

DR. ARTHUR G. KESSLER

Dr. Arthur G. Kessler, physician in charge of the Sunnyrest Sanitarium, Crookston, died suddenly at the Sanitarium, Sept. 10, 1920. He was born in Bryant, Indiana, in 1876 and came to Crookston in April 1919. He had been in the army service having the rank of captain. Previous to entering the service, he was in charge of the Ottertail Sanitarium at Battle Lake. He has been practicing medicine for fifteen years, seven years of which he has specialized in tuberculosis. He is survived by a widow, mother, three brothers and one sister.

DR. T. A. CONLEY

Dr. T. A. Conley of Cannon Falls died at the age of 72 years at his home on September 12, 1920. Dr. Conley suffered from a stroke of apoplexy four years ago. Dr. Conley was born in New York and has practiced medicine for 44 years. He was well known in medical circles and was a former president of the Goodhue County Medical Society. Two sons survive him.

DR. HARRY R. NORDLEY

Dr. Harry R. Nordley, for six years a practicing physician in Minneapolis, and assistant to the city chemist, died at the summer home of his parents, Mr. and Mrs. Nordley, at West Arm, Lake Minnetonka. He died of miliary tuberculosis.

Dr. Nordley was born in Minneapolis Nov. 8, 1887. He was graduated from South high school in 1906, and from the medical department of the University of Minnesota in 1912. He practiced at Blackduck, Minn. for two years and then came to Minneapolis.

He enlisted in 1917. He was a member of Navy Base Hospital No. 13, stationed at Minneapolis. He was a member of the Hennepin County Medical association.

Funeral services were held from the home of his parents, 2013 Fourth St., So. Interment was at Lakewood. Active pallbearers were Mr. Hendricks, Dr. Thorwald Peterson, Dr. Josewitz, Dr. Undine and Mr. Hugo Peterson. Besides his parents, two brothers George and Arthur survive.

CORRESPONDENCE

Vienna, August 28th, 1920.

American Relief Committee for Sufferers in Austria:

I acknowledge herewith receipt of Draft No. 41571 for 4,779.40 kronen according to your wishes and add my heartfelt thanks to you as well as especially to Dr. J. W. Jobling and his charitable cooperators, to all of whom I would write if I knew their respective addresses. Tell them, please, how much we appreciate their welcome endeavors to assist us in our plight, which seems to become more and more distressing. We must repeat it again and again, that the crippled state new Austria can't live by itself alone, having been deprived of all its former resources—not being able to produce more than the fourth part of food, wanted by its six millions of inhabitants and having neither coal nor the necessary raw materials to work into industrial articles, to buy food with, the crowns having become nearly worthless.

If this hopeless condition of new Austria is not grasped to its full extent by the outer world very soon, the twentieth century of progress and civilization will witness the spectacle, unheard of in the history of mankind, of a people doomed to die of hunger, although it is intelligent, skillful and willing to work.

With repeated warm thanks to the donors and to you, I remain,

Gratefully yours,
Prof. ADOLF LORENZ.

OF GENERAL INTEREST

Dr. P. H. Gibson of Crookston has moved to Des Moines, Ia.

Dr. Peter H. Cremer has been appointed health officer of Hastings.

Dr. William M. Empie was re-engaged as school physician of Virginia.

Dr. Bernice Jameson of Rochester was married on September 1st to Clement J. Todd of Corona, Cal.

Dr. Archa E. Wilcox of Minneapolis announces that he has limited his practice to Orthopedic, Industrial and Fracture Surgery.

Drs. O'Brien, Teisberg and Williams announce the removal of their offices and X-Ray Laboratory from the Lowry Building to Rooms 624 to 627 Hamm Building, St. Paul.

Dr. Charles N. Hensel announces that he has severed his present associations and will continue in the practice of internal medicine at 1144 Lowry Building, St. Paul.

At the annual meeting of the Minnesota Medical Alumni Association held at the Minnesota Club, St. Paul, October 1, 1920, Dr. Robert Earl of St. Paul was elected President and Dr. Donald Daniel of Minneapolis, Secretary and Treasurer.

Dr. A. Wohlrabe, formerly with the Mankato Clinic, has associated himself with Drs. Willson and Cabot at 323 La Salle Bldg., Minneapolis. He will limit his practice to Internal Medicine.

After fifteen months service as commander of the Red Cross in Poland, Dr. Albert J. Chesley, Minneapolis physician and former director of preventable diseases of the State Board of Health, has returned.

Dr. Frederick L. Hoffman, of the Prudential Insurance Company, spoke recently before the meeting of the general staff and the visitors of the Mayo Clinic. His subject was "The practical value and limitations of medical statistics."

A local chapter of the medical fraternity Phi Chi, to be known as Kappi Chi has been established at the University. Dr. T. B. Pearson, grand secretary of the fraternity officiated at the ceremonies. Vincent Napoloello, a medical student was elected secretary of the local chapter.

The new hospital erected for the Aberdeen Clinic at Aberdeen, S. D., was formerly opened with appropriate ceremony on September 27th, 1920. Dr. Edward Rosenow of Rochester, gave an illustrated lecture on Infantile Paralysis in connection with the celebration of the occasion.

The Ramsey County Medical Society has appointed a Committee on Vienna Relief whose function is to receive contributions for Vienna physicians. The fund raised will be sent to the American Committee for Vienna Relief, 1001 Peoples Gas Building, Chicago, for aid of physicians only.

The American College of Surgeons is planning to hold district or state gatherings to bring its members together for clinics in such sections. An executive committee to plan for these meetings in Minnesota was appointed as follows: Dr. Thomas McDavitt, St. Paul, Dr. A. T. Mann, Minneapolis, and Dr. C. H. Mayo, Rochester.

The League of Red Cross Societies, Geneva, Switzerland, published the first issue of the International Journal of Public Health in July, 1920. This is a new magazine devoted to international health and the first issue includes an article by Tropeano on Social Medicine and one by Clarke on Venereal Disease after the War.

A medical chautauqua for physicians of Dayton, Ohio, and vicinity will be held at the Fidelity Building, Dayton, September 21 to 24. Among the physicians on the program are Dr. Hugh T. Patrick, Dr. Dean Lewis, and Dr. A. C. Croftan, Chicago, Dr. W. B. Cannon, of Harvard University, and Dr. H. I. Lillie, of Rochester, Minnesota.

A good office location in what is probably the most thickly populated residence district in St. Paul is available for the right physician. The office suite has been used for a number of years by a physician

and dentist but during the war was vacated by the physician. Communicate with Dr. H. C. Frayer, The Angus, 394 Selby Ave., St. Paul, Minn.

The State Board of Health calls attention to the fact that physicians are responsible for the information contained in birth certificates. The penalty for furnishing false information effecting any certificate or record is a fine of $100.00 or imprisonment for not more than ninety days. Recent legislation regarding passports, schooling and occupation has rendered vital statistics more important.

The Academy of Clinical Medicine of Duluth, Minnesota, has been organized and is occupying its new building opposite St. Lukes Hospital. The directors consist of Drs. Benjamin F. Davis, Surgery; Lloyd L. Merriman, Medicine; Frederick Myles Turnbull, Eye, Ear, Nose and Throat; Veader N. Leonard, Gynecology; Charles H. Schroder, Pediatrics; Arthur H. Schwartz, Dermatology; F. H. Saniter, Oculist; Arthur J. Huderle, Dental Surgery; F. C. McLean, Reontgenology; C. McCabe, Laboratory and F. W. Sinclair, Administration.

Prof. U. Crapi of Lugano, Switzerland, the General Secretary of the International Association of "Pneumothorax Artificialis", in a circular letter forwarded by Dr. S. Adolphus Knopf of New York, has issued an appeal to all former members of the association and all other physicians interested in artificial pneumothorax to send their names and addresses and subscription of five francs to him. Subscribers will receive the journal known as Pneumothorax Therapeutique as soon as publication is renewed, and a list of the names of physicians throughout the world who practice this therapeutic procedure.

All-American Health Conference—The first of a series of regional health conferences authorized by the International Health Conference in Cannes is to be held in Washington, December 6-13. It will be devoted to a consideration of Venereal diseases. The conference is being organized under the joint auspices of the U. S. Interdepartmental Social Hygiene Board, the U. S. Public Health Service, the American Red Cross and the American Social Hygiene Association. Prof. William H. Welch of Johns Hopkins has consented to serve as president, and already assurances have been received that some of the foremost physicians and sociologists will participate.

The owner of a pair of gloves found at the recent State Medical meeting may receive same by furnishing description to the editor.

OPPORTUNITIES FOR PRACTITIONERS

1. Licensed practitioners may be registered as special students for regular class work, lectures, dispensary and clinics on payment of $30.00 per quarter of 12 weeks. They are privileged to attend as visitors at any time without fee. Copies of the bulletin of the Medical School, containing description of all required and elective courses, will be sent on request.

2. The laboratories of the Medical School are available for purposes of special study or research at almost any time. These laboratories include Anatomy, Physiology, Physiological Chemistry, Bacteriology, Pharmacology, Pathology, Experimental Medicine and Experimental Surgery. Usually reasonable assistance can be offered and instructors are at hand, although the present staff is not sufficient to permit of assignment of instructors exclusively to this work.

A cost charge for animals and expensive materials will be made, and the registration fee is $30.00 a quarter.

Practitioners desiring to dissect or work in Cadaver Surgery should write in advance, as the present shortage of cadavers is complicating all work of this kind.

3. The School will resume at an early date the "Physicians' Days" of special clinics, discontinued on account of the war, and, last fall, on account of the influenza epidemic. Announcements will be published and a good attendance is hoped for.

4. Physicians are invited to attend "rounds" and clinics at the University and allied hospitals at any time.

5. Thorough advanced courses for the training of specialists are offered by the Graduate School in connection with the Medical School at Minneapolis and the Mayo Foundation at Rochester. Special bulletins concerning this work will be sent on request addressed to the Dean of the Graduate School.

PROGRESS

Abstracts to be submitted to Section Supervisors.

MEDICINE

SUPERVISORS:

F. J. HIRSCHBOECK,
FIDELITY BLDG., DULUTH.

THOMAS A. PEPPARD
LA SALLE BLDG., MINNEAPOLIS

ARTERIO SCLEROSIS, CONTRACTED KIDNEY, AND BLOOD PRESSURE: Harpuder (Deutsch Arch. f. Klin. Med., 1919, 129, 74) records a careful study of 1,165 cases of arterio sclerosis at the medical clinic in Munich. The vast majority of these patients are over 40 years of age. Under 60 there are two males to one female. Over 70 the majority are females. The causes of death in these cases were as follows: 53% died from circulatory failure, 38% from cerebral causes, and 7% from uremia.

The most frequent finding is a peripheral Sclerosis which may vary very greatly in degree. Changes in the aorta called for a differential diagnosis of

angina pectoris, luetic aortitis, and aortic sclerosis. Pain and abnormal systolic sounds at the aortic area indicate more frequently luetic disease. As a general rule, aortic changes occurring in a luetic may be considered as due to lues. Angina Pectoris is less frequent. The most frequent evidences of the sclerotic process involving the heart and aorta are: first, enlargement of the heart, and second, an accentuated second aortic tone. Evidences of cerebral arterio sclerosis were headache, insomnia, pains in extremities, fatigue, vertigo, and physic changes. In these cases the patient presents himself earlier and as a rule dies from his cerebral condition before a cardiac insufficiency develops.

In the entire series the kidney is attacked the most frequently of all organs, the process going on in the smaller kidney vessels being of most importance. Evidences of kidney change were; albuminuria, occurring in 53%, often in minute quantities; the presence of casts noted in 18%, this being a little more reliable finding indicative of actual kidney change. Kidney function was best determined by tests of concentration and by Hedinger and Schlayer tests. In a considerable proportion (41%) there was present cardiac hypertrophy before any signs of renal insufficiency. Hypertension, whether due to vascular change in kidney, in the general perpheral circulation, or whether a separate entity is still a question. Arterio Sclerosis is in itself (even in the heart and brain vessels) not a cause of hypertonia. In arterio sclerotic contracted kidney the blood pressure is raised constantly and considerably. In nearly all cases of lasting hypertension the kidney is clinically demonstrably injured. In a small number of cases (2.8%) with a lasting hypertonia there could not be proven any disturbance of urine secretion. The extent of the microscopic changes in the kidney need not parallel the rise of blood pressure. Hypertonia is shown not to be a necessary accompaniment of old age.

T. A. PEPPARD.

THE BLOOD SUGAR TOLERANCE TEST AS AN AID IN THE DIAGNOSIS OF GASTROINTESTINAL CANCER: Julius Friedenwald & George H. Grove (Am. Jour. Med. Sc., Sept., 1920). Freund, in 1885, was the first to point out that there is always a hyperglycemia in carcinoma, based on his observation of 70 blood sugar investigations. This was not true in sarcomatous patients. Trinkler investigated the blood sugar content in patients afflicted with various conditions, and found the hyperglycemia to be constant in cancer but not in such conditions as acute infections, heart disease, nephritis, syphilis, etc. He concluded from his findings that hyperglycemia is always present in cancer patients and to a greater extent in those who had cancer of the internal organs than in those who had cancer of the skin or mucous membrane. Hamman and Hirschman observed that in normal individuals, after the ingestion of 100 grms. of glucose, the blood sugar rises to a maximum concentration, reaching its height in 30 minutes, followed by gradual fall. Some rather typical curves following the ingestion of 100 grms. of glucose were also observed in diabetes, nephritis, thyroid disease and pituitary disease. Rohdenburg, Bernhard and Krehbiel, standardized the determinations by making the blood sugar estimate immediately before the injection of the glucose, 45 minutes after, and 120 minutes after. In the normal individual the blood sugar reached its maximum in 45 minutes, and gradually receded to the normal. In cancer, on the other hand, they observed that the blood sugar rose steadily up to 45 minutes after the ingestion, and continued to rise or remained stationary for 120 minutes after the ingestion of the glucose, being either as high or higher at the 45 minute reading. After 120 minutes the curve gradually began to recede, reaching the normal again in 3 to 4 hours. This they found not to be present in other diseases. Benedict and Lewis, noted a steady increase in the blood sugar content as the malignancy progresses, reaching a maximum just prior to death, the hyperglycemia being in all probability the result of the constant demand of the growing tumor for carbohydrates. Rohdenburg, Bernhard and Krehbiel have divided these curves into three types. Firstly, those in which the figure at 120 minutes is as high or higher than at the 45 minute interval; secondly, those in which the curve at 120 minutes is almost or nearly to the original figure before the ingestion of glucose; thirdly, those in which the initial sugar concentration was higher than at 45 minutes and the 120 minute interval showed a return to the original figure more or less complete. They concluded that although the reaction was not specific, yet they found most cases of malignancy to conform to the type 1 reaction.

Friedenwald and Grove have placed their reactions into four groups, the 4th, or so-called "cancer curve" being particularly interesting. In 32 cases of cancer of the gastrointestinal tract they found the initial content in the blood to be from .14 to .17 per cent, rising to .21 to .24 after 45 minutes, and remaining at that level for 120 minutes, at no time during the period falling below .20 per cent. This was not present in any of the other 55 examinations done on cases of carcinoma outside of the gastrointestinal tract, sarcoma, or in the benign affections of this tract.

Dr. Charles E. Simon has suggested two possibilities as the reason for this hyperglycemia and this typical curve. His first hypothesis is that as dextrose is the most potent source of energy in cell production, it is conceivable that the liver is called upon for an increased supply of dextrose. This call is responded to, but the deficient blood supply in carcinoma makes it possible for only a small portion of the sugar being utilized, the hyperglycemia therefore resulting. In sarcoma we have a more abundant blood supply, in the affected tissues and the hyper-

glycemia is not evident, the available dextrose being utilized by the neoplasm. The second hypothesis is that a hormone is liberated by the carcinoma, in consequence of which the normal power of oxidation of sugar by the tissues is impaired, the hyperglycemia again resulting in consequence.

The writers believe that the test is of considerable importance in the diagnosis of cancer, although its availability in early cases has not been established on account of lack of opportunity to make a sufficient number of tests on cases of this kind.

F. J. HIRSCHBOECK.

A STUDY OF HYPERACIDITY: Martin E. Rehfuss and Philip Hawk (Amer. Jour. of Med. Sc., Sept., 1920). Hyperacidity has been accepted as a clinical entity without careful study of normal secretion, with which to compare pathological cases. Due to the large number of pathological cases studied, an opinion has been established that high acid titration figures indicate gastric pathology.

The subjective symptom, hyperacidity, which is really the result of lowered acid tolerance, must not be confused with titratable hyperacidity for it has been repeatedly seen in cases of gastric achilia and many cases of high titration values are seen in which it is not present.

Eight hundred and forty-two cases were studied to determine the response to all types of food. It appears that every normal individual has a characteristic form of gastric digestion and can be placed in one of three classes, both as to secretion and motor activity. These three classes have been termed hyper, iso and hypo and occur in approximate proportions of 40%, 30%, and 30% respectively.

So wide is the range of secretory and motor response in normal cases that it is difficult to determine when the limit of the normal and the beginning of the pathological are reached. For instance, fasting hypersecretion (Reichmann's Disease) and digestive hypersecretion are but exaggerations of the hypersecretory type. Such findings in an individual of the iso or hypo secretory type would be distinctly abnormal.

The old standard of acidity, eighty degrees, which was supposed to indicate hyperacidity, can no longer be considered as correct, for in forty per cent of the normals this figure was exceeded. An acidity of one hundred degrees or over is frequently encountered. Hyperacidity, as expressed by an actual increase in titratable acidity over the normal range, scarcely exists.

ROBERT H. KENNICOTT.

SURGERY

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RESULTS OF OPERATION FOR ADENOMA WITH HYPERTHYROIDISM AND FOR EXOPHTHALMIC GOITER: Edward Starr Judd, (Ann. of Surg., vol. 72, Number 2, p.p. 145-151). In cases of adenoma with hyperthyroidism the enlargement of the thyroid has existed for a long time, in our experience almost twenty years on an average, before it was associated with symptoms of hyperthyroidism. In the cases of exophthalmic goiter this interval was usually less than one year. Acute crises of hyperthyroidism are not so apt to occur in cases of toxic adenoma as in cases of exophthalmic goiter; the toxic features develop more slowly and are progressively noticeable. The basal metabolic rate is always increased, but does not average so high as in exophthalmic goiter.

This study of the results of operation for adenoma with hyperthyroidism and for exophthalmic goiter is based upon two selected groups of 100 cases each, 100 consecutive cases of adenoma with hyperthyroidism in which operation was done in 1917 and 1918, and 100 consecutive cases selected from the cases of exophthalmic goiter in which operation was done in 1914. Letters of inquiry were sent to the patients in each group. Information was received concerning all the patients with adenoma with hyperthyroidism and concerning ninety of the patients with exophthalmic goiter. Eighty-eight of the patients with adenoma were females whose average age was 48.8 years; the average age of the twelve males was 48.4 years. Eighty-three of the patients with exophthalmic goiter were females, their ages averaging 34.3 years; the age of the seventeen males averaged 36.6 years. In adenoma with hyperthyroidism, the goiter was first noticed at an average age of 29.8 years, and the patient came for treatment nineteen years and four months later, after having had symptoms for two years and five months. In the cases of exophthalmic goiter the enlargement was noticed at an average age of 31.8 years, and the patients came for treatment three years and eight months later, after having had symptoms for one year and nine months.

In the cases of adenoma with hyperthyroidism, the average pre-operative metabolic reading in ninety-eight cases was 32.7, and the average postoperative reading in forty-four at an average of twenty-two days after operation was 9.2. In the cases of exophthalmic goiter consistent metabolic readings were not taken in 1914.

In the group of cases of adenoma with hyperthyroidism, thyroidectomy was done with small risk, while in the 100 cases of exophthalmic goiter, primary

thyroidectomy was done in but thirty-six, and preliminary primary or secondary ligation in sixty-four. In most cases the best operative results are obtained by removal of all except the posterior part of each lobe.

Results of Operation in 100 Cases of Adenoma With Hyperthyroidism:

Patients cured	83	83%
Patients markedly improved	5	5%
Patients slightly improved	1	1%
Patients not benefited	2	2%
Patients died from all causes during the two years	9	9%

Results Six Years After Operation in 88 Cases of Exophthalmic goiter:

Patients cured	58	64.44%
Patients markedly improved	12	13.33%
Patients slightly improved	5	5.55%
Patients died from all causes during the six years	15	16.66%

V. C. HUNT.

OBSERVATION ON THE TREATMENT OF CHRONIC EMPYEMA: George J. Heuer, (Ann. of Surg., July, 1920, No. 1). It is possible to sterilize chronic empyemic cavities by the prolonged use of antiseptic solutions. Sterile intrapleural cavities need not be obliterated; they are quite compatible with good health. The author's experience shows that he, at least, has been unable to sterilize all empyemic cavities within a reasonsable length of time by injecting them with bismuth paste. In the smaller cavities, especially in the long, tubular intrapleural sinus tracts of tuberculous origin, the injection of bismuth paste has proved quite uniformly successful.

The author observes that the thickened pleura about an empyemic cavity probably prevents the obliteration of the cavity. By stripping the parietal pleura from the thoracic wall well beyond the limits of the cavity and excising it, the cavity might be obliterated more readily, resulting in an extrapleural cavity, upon the mesial wall of which is an area of visceral pleura. The procedure removes at least half of the infected pleura and allows the formation of granulation tissue from the thoracic wall. Dakinization of the extrapleural cavity is necessary because of the presence of infection. Four patients have been successfully treated by this method. Sterilization of the cavities and closure of the sinus tracts were effected in one case in thirteen days, in one case in twenty-one days, in one case in forty days, and in one case in sixty-seven days. The patients have remained well for from six months to one and one-half years.

In the cases in which bismuth x-rays show a sinus leading directly into a single cavity, the tubes of the irrigating apparatus are introduced into the cavity without preliminary operative procedures and the sterilization of the caviety attempted.

In cases in which the mechanical conditions for subsequent sterilization are unsatisfactory, a preliminary operation, with excision of the sinus tract or the establishment of a new opening into the cavity at a point of election, is necessary. This method has been carried out in ten cases. In six cases, sterilization and closure were accomplished in from fourteen to seventy days, and the six patients have remained well for from seven months to three years. In all of these cases the sinus tract was closed over an intrapleural cavity. Subsequent x-ray examinations of four patients show that the cavities, even though surrounded by a markedly thickened pleura, have been spontaneously obliterated and that the thickened a pleura has largely disappeared.

The immediate sterilization of empyemic cavities with pure carbolic acid and complete closure at the time of operation have been carried out in five cases. In each the cavity was small (up to 200 c.c. in capacity) and favorably situated. Two of these cases healed by primary intention and remained healed. The wound of the third case became indurated and red, and was opened, with infection of the cavity, which was later sterilized with Dakin's solution and closed by secondary suture. The reports of the other two cases are missing.

Hemorrhage following the irrigation of empyemic cavities with Dakin's solution has occurred in three cases. It was never excessive and ceased as soon as the irrigations were discontinued. The development of bronchial fistulae has prevented the continuation of the irrigations because of its disagreeable effects upon the respiratory tract.

F. R. SANDERSON.

LATE RESULTS AFTER THE RADICAL OPERATION FOR CANCER OF THE BREAST: Willy Meyer, (Ann. of Surg., vol. 72, Number 2, p.p. 177-180). The radical operation for cancer of the breast that the author has practiced since 1894 starts in the axilla and works toward the sternum, and consists of the removal of the lymph nodes and axillary fat before the removal of the cancerous breast. He has not seén a lasting cure when the operation has been done in two stages, the first stage, the removal of the breast with the axillary contents, and the second stage, the excision of the pectoralis major muscle.

The author reports six cases in which the patients are alive and well from twelve to twenty-five and one-half years after operation. Five other patients remained free from recurrence for four, six,. eight (two patients), and sixteen years, respectively, and then died from other diseases. Another patient, a pronounced diabetic at the time of operation, was well for six years, and then succumbed to the diabetes without any recurrence of the cancer. Still another patient upon whom a radical operation was done for cancer in the right breast returned one year and eight months later with a carcinoma of the left

breast, which was removed, and at the time of the last report she had been free from recurrence for six and one-half years after the second operation.

The author calls attention to Paget's disease, which he terms the most malignant of all cancers of the breast. He reports three cases; all of the patients died from metastasis. In each case, however, operation had been late.

Involvement of supraclavicular glands in cancer of the breast does not present a contra-indication to operation, but none of the patients who remained well for from twelve to twenty-five years and one-half years had the supraclavicular glands involved.

V. C. HUNT.

THE RUBBER TUBE IN INTESTINAL SURGERY: Balfour (Surg. Gyn. and Ob., Vol. 31, No. 2) points out that ineffective attempts are occasionally met with in closing colostomies. Successful closing sometimes requires enough suturing of the opening in the bowel to contract the lumen beyond what appears to be the limit of safety. The rubber tube serves a useful purpose by preventing further contraction; and by conveying gases and fecal matter past the point of closure it gives the best possible condition under which healing may occur. In these cases the tube is introduced through the colostomy and passed out the anus, leaving the upper end 3 or 4 inches above the point of closure. The tube is removed in about 10 days.

The mechanical functions of the tube are chiefly called upon in its employment in axial anastomosis, closure of colostomy and fecal fistula repair. Further important mechanical function of the tube is observed in its action as a splint. Its use in this capacity is advantageous in cases in which extensive scar, due to previous operations or the adhesions of inflammatory exudate are present and there is danger of postoperative obstruction. The use of the tube is also recommended in certain disturbances in the neuromuscular mechanism of the intestinal tract. The article is accompanied by several case reports and illustration which make the article very instructive.

E. M. JONES.

GYNECOLOGY AND OBSTETRICS

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UTERINE FIBROIDS IN PREGNANCY: Aime Paul Heineck, (Chicago Med. Rec., July, 1920. This is as the author states "an analytic study of personal cases not previously published and of three and eighty cases collected from the literature, all operatively treated." The author refers to one hundred and forty-six articles in both domestic and foreign literature.

He discusses every phase of the question, etiology, variability, number, size, shape, relations, seat, classification, and mechanical disturbances; nutritional, inflammatory and degenerative changes, concomitant pathologic conditions, diagnosis of pregnancy and fibroids, pressure signs and symptoms, and those of inflammatory and degenerative changes; influence on woman's fecundity, on gestation, labor and puerperium. Finally he discusses the treatment, expectant and operative, the latter including abortion, myomectomy caesarean section, vaginal and abdominal, and hysterectomy, and gives the advantages and disadvantages of each.

ALBERT G. SCHULZE.

THE CHEMISTRY OF ACIDOSIS: Leon Jonas (Therapeutic Gazette, July 15, 1920). The ability of the blood to maintain its constant reaction and as a result a constant H-ion concentration is due to the presence of two weak acids, phosphoric and carbonic, and their sodium salts, chief of which is sodium bicarbonate. The normal bicarbonates of the blood yield from 60 to 70 vol. per cent of carbon dioxide and any reduced yield is due to accumulation of acids. This has led Van Slyke to define acidosis as a decrease in the bicarbonate content of the blood.

When a foreign acid enters the blood (endogenous or exogebous) it unites with the sodium bicarbonate to form a neutral salt and carbon dioxide is liberated. The greater the amount of foreign acid, the greater is the demand on the alkaline reserve with resulting reduction in the blood bicarbonate. The bicarbonate and H-ion concentrations of the blood are constant in normal individuals and the latter increases only in the late stage of acidosis when the supply of bicarbonate in greatly reduced.

The H-ion concentration bears a very direct relationship to the ratio of the carbon dioxide existing in the form of carbonic acid and that in the form of sodium bicarbonate. This ratio has been found to be 1:20 in normal individuals and changes only when the sodium bicarbonate is greatly reduced. This is maintained through pulmonary ventilation and as long as it remains at 1:20 we have a compensated acidosis no matter how low the bicarbonate may be. Pulmonary failure brings about an uncompensated acidosis and increased H-ion concentration.

The alveolar carbon dioxide tension and the blood carbon dioxide content are both tests for acidosis.

Rapid and deep breathing, Kussmaul breathing, is nature's method of over coming an increased H-ion concentration which has resulted from carbon dioxide accumulation, in cases of acidosis. The other way of exit is by way of the kidneys. Normally 4 Gms of soda bicarbonate will alkalanize an acid urine; failure to do so diagnoses a case of acidosis (Sellard's test). This test is safe only with normal

kidney elimination; in other caes carbon dioxide determinations must be resorted to.

There are two types of acidosis, that arising from failure of kidney elimination or retention-acidosis seen chiefly in glomerular nephritis. The second type is metabolic and due either to incomplete combustion of fat as in starvation or inability to utilize carbohydrates as in diabetes. This second type is found also in starvation, cyclic vomiting and undernutrition of all types.

There is also the acidosis of shock and a mild acidosis is found in eclampsia, acute infections and decompensations, etc.

ALBERT G. SCHULZE.

RELATIVE VALUE OF RADIUM AND SURGERY IN THE TREATMENT OF TUMORS OF THE PELVIC ORGANS: J. G. Clark (Ann. of Surg., June, 1920). This report on the results of radium therapy from one who is primarily a surgeon, is of particular interest to the general profession. The experience of Dr. Clark and his staff at the University of Pennsylvania Hospital is sufficiently broad to give great weight to his conclusions which as yet are stated conservatively but with with increasing definitness in each report. As regards myomata, modern surgery offers such excellent results and with such low mortality, that there is not great demand for non-operative treatment. In the author's clinic, operation is selected for the larger tumors and those presenting special complications, in other words for the more serious cases. Their mortality was only 2 per cent for the last 100 patients, yet during the same period 110 tumors were treated satisfactorily with radium with no mortality, and practically no morbidity. Degenerations and malignant complications present special problems. (1) Cancer of the funds complicated myomata in 4 per cent of 850 cases, but the correct diagnosis had been made previous to operation in practically all. The type of bleeding is differentiated between myoma which is rarely destructive, causing menorrhagia with clean cut intermenstrual intervals; and cancer, which soon causes destruction of mucous membrane and is associated with metrorrhagia or intermenstrual bleeding of varying intensity. The author feels that with ordinary care there is slight danger of overlooking cancer. (2) Certain benign degenerations give more concern, due to absorption of toxic materials resulting in cachexia and anemia not accounted for by loss of blood. The author believes that such absorption from liquefying tumors after radium is not desirable. Also, that large tumors undergoing hyaline change are not greatly affected by radium. Therefore he does not advise radium for myotata larger than a three months pregnancy. (3) Sarcomatous degeneration he regards as exceedingly rare and not a serious contraindication to radium. He excludes from such treatment the following types of cases. (1) Tumors exceeding the size of a three months pregnancy, unless there be marked contraindication to operation. (2) Cases with symptoms of inflammatory lesion, marked unilateral pain or tenderness, since there is serious possibility of stimulating dangerous activity. (3) Patients with nearly normal menstruation who show definite cachexia or anemia. (4) All cases with symptoms of co-existing abdominal surgical lesions. In other words he accepts for radium, only those patients with relatively small tumors causing menorrhagia as the chief symptom. In young women operative treatment is favored, since many cases permit of simple myomectomy, or at least, the menopause may be avoided. When radium is used in such cases, mild doses are advised, and repetition if necessary. Result of 150 patients treated with radium, only 4 were unrelieved and required subsequent hysteroctomy. The menopause is abrupt, especially in the anemic. With cancer of the cervix, radium treatment is more popular on account of the large number of inoperable cases, high operative mortality, and frequency of recurrence. As with operative treatment, there is great variation in results with radium. However the author has a number of advanced and seemingly progressive cases which cleared up with radium and have gone several years without recurrence. The following considerations are emphasized. Bleeding and discharge are usually controlled. Pain may occur after radiation but is not as severe as with the untreated cases. Propaganda should teach that while early cancer is painless, late cancer is always accompanied by severe pain. Fistulae, vesico-vaginal and recto-vaginal, occurred in a few instances, but less frequently than in the untreated. Operation is advised in frankly operable cases, though there is greater tendency to limit the field of operability and use radium for doubtful tumors. Brief radiation is used previous to operation. Operation is not advised following marked improvement from radium because surgery has little more to offer, the scar tissue resulting from radium, renders dissection of the broad ligaments difficult, and there is danger of stirring up and implanting cancer cells which have been encapsulated. Conclusions: (1) Radium is the treatment par excellence for inoperable cases. (2) Borderline cases are treated with radium rather than subjected to the risk of radical operation. Early cases are operated on, and followed by post-operative radiation. (3) Cancer of the fundus even advanced is treated with hysterectomy except in the face of grave contraindication. As yet the author can claim no cures but hopes soon to report some who have passed the five year period.

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PEDIATRICS

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THE EFFORT SYNDROME IN CHILDREN: Charles Gilmore Kirley, (Arch. of Ped., Aug., 1920). The boy or girl presenting this syndrome comes with a history of absence of capacity for sustained effort, both mental and physical. Physical development and nourishment may be up to par. The intelligence may be normal. A thorough physical examination fails to show disease. Scholarship is poor. No interest is shown in sports and contests. They are simply poor types of humans of 50 to 75 per cent capacity. They are not to be confused with the child temporarily below par from rapid growth, poor food, bad habits or acute illness.

Analagous to this class among adults were the recruits in the army who failed in endurance under the army routine. To this condition Dr. Thomas Lewis applied the term "effort syndrome". Later writers recognize the condition as "neuro-circulatory asthenia" or "neuro-circulatory myasthenia" (MacFarlane) since the most prominent symptoms are from the side of the nervous and circulatory systems.

The author cites a series of illustrative cases and makes a plea for the recognition of this type of child. He or she is constitutionally inferior, substandard and too much must not be demanded. For economic reasons, to prevent the waste of misfits, an expert occupational diagnostician is needed. These individuals may do well in business or clerical spheres where they would fail in stations demanding high scholarship, executive ability, or sustained, severe physical effort. The curriculum and vocation should be fitted to the child rather than the child forced and driven to fit the curriculum.

Physicians and educators should appreciate that what often passes as indifference and indolence may be constitutional in origin and impossible of correction.

F. C. RODDA.

THE DIETITIC TREATMENT OF SUMMER DIARRHOEA: J. P. Crozer Griffith (Arch. of Ped., Aug., 1920). Since errors in feeding with consequent acute indigestion and intoxications usually precede an infectious diarrhoea the author, properly, concludes that the dietetic regime is, in general, the same for the various diarrhoeas. He places great emphasis on prophylaxis. He quotes, Still to the effect that 2,000 to 4,000 infants under one year of age die annually in London from diarrhoeal disease, also Hermann's figures of 33 per cent of infant deaths in Berlin, in the first year, as due to digestive disturbances. A further fact that artificially fed infants show five times the mortality seen in those breast fed leads to the obvious inference that maternal feeding is the greatest prophylactic factor in summer diarrhoeas. Especial efforts should be made to nurse the baby for the first three months and during the hot summer season.

If the infant is of necessity artificially fed the cleanest milk should be employed and that should be heated. Danger of heated milk causing scruvy is overestimated and in any event orange juice is a safe preventative. The milk mixture should be a proper one and underfeeding should be preferred to overfeeding.

Diet during diarrhoea—Diet is by far the most important factor. After an initial purge and a starvation period up to twenty-four hours, a suitable food should be selected. Since fats and sugars are often causitive factors or at least poorly tolerated during the attack these must be present in the mixture in minimal amounts. On the other hand protein and amylaceous substances with a large water intake are indicated. The indications may be met first by barley water—broths thickened with amylaceous substances, buttermilk mixture, case in milk, skimmed milk and malt soup.

Each case must be studied in detail and treated as an entity. Milk on which the child has been thriving may even become an active poison during diarrhoeal diseases. Relapses are prone to occur and the mother must be cautioned against impatience. After the summer is over and recovery is complete a rapid gain in weight is to be anticipated.

F. C. RODDA.

THE ANTINEURITIC AND GROWTH STIMULATING PROPERTIES OF ORANGE JUICE: Albert H. Byfield and Amy L. Daniels, with the cooperation of Rosemary Loughlin, (Am. Jour. of Dis. of Child., May, 1920). Orange juice has been so universally regarded as an antiscorbutic, that its other possible properties as effecting the well-being of artificially fed infants have not received much consideration. The therapeutic effects of the addition of orange juice to the diets of infants suffering from scurvy has been studied by Hess. When orange juice was given, not only did the usual scurvy symptoms disappear, but the children gained in weight and the cardiac signs became normal. The omission of the orange juice was followed by a period of stationary weight until it was again added to the diet.

Hitherto, oranges, and fruits in general, although valuable antiscorbutics, have not been regarded as sources of the antineuritic vitamin. Since the antineuritic value of oranges had not been determined, it seemed pertinent to study them from this standpoint, especially in respect to their influence on growth. From preliminary studies of the influence of orange juice on the growth of rats, it was roughly estimated that 45 c. c. of orange juice should stimulate growth, and when this amount was given to infants there was

a marked stimulation of growth, but in cases where only 15 c.c. was used there was none but the weight again became stationary.

Seidell, and later, Harden and Zilva have shown that the antineuritic vitamin may be removed quantitatively from a substance containing the two vitamins by adsorption, and the antiscorbutic material remain unaffected. When 45 c.c. of this filtrate per day was given to babies there was no increase in weight, but when the orange juice was given again there was an immediate gain of weight.

That orange juice contains a growth stimulating material is further evidenced by the fact that rats fed a purified ration, with orange juice as the sole source of the antineuritic vitamin, grew normally. That orange juice contains a considerable quantity of the antineuritic vitamin was also shown by its effect on polyneuritic pigeons. These birds, previously fed polished rice for from twenty-one to thirty-seven days, developed typical polyneuritis, with muscular weakness, retraction of the neck, and paralysis of the muscles of deglutition. One of these pigeons, suffering from almost complete paralysis of respiration, was quite restored by the next morning, after the subcutaneous and oral administration of orange juice on the previous evening. While the other pigeon which was given the filtrate from which the vitamin had been abstracted did not recover but died after four days.

These facts lead us to conclude that orange juice shaken with kaolin and filtered loses its growth stimulating property, while its antiscorbutic potency is not impaired.

The growth stimulating influence of orange juice appears to be due to the antineuritic vitamin contained therein.

ROY N. ANDREWS.

ROENTGENOLOGY

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THE X-RAY AS A MEANS FOR THE DIFFERENTIAL DIAGNOSIS OF TUMORS: Von L. Seitz and H. Wintz (Munchener Medixinische Wochenschrift, June 4, 1920). The authors consider that a myoma of the uterus that is suspected of a sarcomatous change should not be rayed with the castration dose of 34%, but must be rayed with the sarcoma dose of 60-70% of the erythema dose. The differential diagnosis, whether one has to do with a sarcoma or a myoma, can be determined with greater surety from the results of the x-ray treatment. Especially if the retrogression of the tumor begins after several days, if it is very apparent after 14 days, and more or less complete after 4-5 weeks, then one is dealing with a sarcoma. If on the other hand the retrogression sets in first after 3-4 months, if it proceeds slowly and is complete only in the course of 1-2 years, then one is dealing with a myoma. The shrinking of the myoma is a secondary matter which appears only in consequence of a lack of ovarian activity.

Because the cells of different malignant tumors, being unripe quickly differentiating cells, have a greater susceptibility to x-rays than the mature cells of clinically benign tumors, often the effects of x-ray on the tumor gives the diagnosis between benign and malignant growths. Lymphosarcoma reacts very markedly and quickly, while on the other hand tuberculous glands retrogress very much slower.

Also in the case of differential diagnosis of sarcoma and carcinoma, in many cases the effects of x-ray shows first the difference whether one is dealing with sarcoma or carcinoma. Large ovarian and abdominal sarcomas react very quickly and markedly to x-ray treatments, carcinomas on the other hand, if the carcinoma dose is not reached or only partially reached, react very slowly and transitorily.

R. G. ALLISON.

OSTEOCHONDRAL TROPHOPATHY OF THE HIP JOINT—LEGG'S DISEASE: W. E. Reiley (Amer. Jour. of Roent., July, 1920). This condition was first described by Arthur T. Legg in 1909. Reiley has found that the incidence of this condition as observed at his hospital has been exactly the same as for congenital dislocation of the hip and tuberculosis of the hip joint. He reports four cases. The age of onset was from six to ten years. Two occurred in boys and two in girls. In three cases the right hip and in one case the left hip was affected. Pain was observed in only one case. There was a history of trauma in only one case. There was a distinct difference in the muscular development of the lower extremities in the two boys and to a less extent in the two girls which were earlier cases.

From the standpoint of roentgen diagnosis the condition presents the following findings. There is a marked thickening of the neck of the affected femur. The acetabulum shows somewhat variable density and the rim is irregular and roughened. Two cases showed an area of decreased density of the diaphysis bordering the epiphyseal line, which is irregular in all.

He emphasizes the necessity of roentgen differential diagnosis of affections of the hip joint, especially to avoid confusing this condition with tuberculosis of the hip.

R. G. ALLISON.

BOOK REVIEWS

STANDARD NOMENCLATURE OF DISEASES AND PATHOLOGICAL CONDITIONS, INJURIES, AND POISONINGS, for the United States Department of Commerce, Bureau of the Census, Sam. L. Rogers, Director. Washington Government Printing Office, 1920.

This nomenclature is a first edition and necessarily mistakes have been made in it which will be rectified by subsequent editions. It is a very long step in the right direction. Too long indeed has medical terminology been a subject largely of whim and caprice. The diseases are known by too many different names and in many instances the names do not suggest anything connected with the illness itself. Efforts to popularize such a nomenclature as is here produced have been carried on for a period of more than fifty years. In any of the other sciences such as botany no such confusion of terminology exists. Unless one name is used for each flower the greatest difficulty would be encountered in discussing any botanical subjects. In American medical terminology uniformity of expression should also be present. It facilitates the interchange of ideas. Without this uniformity a condition very like that which existed during the construction of the Tower of Babel is present.

An attempt is here made to combine the nomenclatures of the Bellevue and Allied Hospitals of New York with those of the medical departments of the Army, the Navy, the Public Health Service, and to this end the War Risk Insurance Bureau and the Council of National Defense were also consulted. Subsequently the Classification of Diseases of the Massachusetts General Hospital, the List of Diseases and Pathological Conditions, Stanford University Department, and the Nomenclature of Diseases, Royal College of Physicians of London were included in the consolidation.

Many terms are given which some physicians may regard as symptoms of a known disease. The printing of the primary disease in boldfaced type suggests the preference to be given.

The work is divided into sections dealing with "Diseases and Pathological Conditions," a section dealing with "Injuries, Wounds, etc., by External Causes," which is prefaced by the remark:

> "In all statements of injuries the cause or manner of the injury should be given and information as to whether the injury was accidental, suicidal, homicidal, etc., should be included."

The third section deals with "Poisonings and Intoxications."

It is greatly to be hoped that as time goes on medical writers will accept this governmental nomenclature as standard nomenclature and thereby do much to place the practice of medicine on the basis of an exact science.

C. A. SMITH, JR.

HYGIENE-DENTAL AND GENERAL. By Professor C. E. Turner. C. V. Mosby Co., St. Louis, 1920. $4.00.

We have witnessed many times the necessary need for a sound mind and a sound body and are cognizant of their direct relation to health and happiness but heretofore we have had no single work, to my knowledge, where one may get such a general idea of the relation of clean mouth to a clean system. Whether we are dealing with primary or secondary infections it behooves us to have every link in the chain in as perfect working order as possible.

Other books have dealt with certain single topics brought out by Professor Turner but as far as I know none has brought the many topics together in the manner in which he has. He has generalized considerably but in order to cover his field it has been necessary for him to be more or less brief. If he were to treat the subject exhaustively, he might write a book on any one of his chapters.

We dentists, in order to be prepared for the increasing demands made upon us by school and factory organizations, must obtain a broader knowledge of hygiene and its application.

Professor Turner has given a comprehensive study to his topic and put the same into this fine book.

CARL J. RICE.

THE DUODENAL TUBE AND ITS POSSIBILITIES. By Max Einhorn, M. D. W. B. Saunders Co., Philadelphia, Pa., 1920. $2.50.

Einhorn presents many new features in the finer details of gastro-intestinal conditions, both therapeutically and diagnostically.

Starting with the early works of Boas in 1889, Boldgreff, Pawloff, etc., he gives a brief and concise resume of the development of the duodenal tube.

There is a chapter devoted to the physiology of the duodenum, normal and pathological, together with methods of determining qualitatively and quantitatively the various ferments in the duodenal juice.

Its importance in the diagnosis of gastric, duodenal, hepatic and pancreatic disease is brought out in another chapter.

Duodenal alimentation and lavage is an added feature of the duodenal tube. Einhorn advocates its use in many diseases and in post-operative treatment.

Various accessories or modifications of this tube for the investigation and treatment of diseases of pylorus, duodenum and small intestines are described in detail.

On the whole, Professor Einhorn has presented in a very clear and concise and exhaustive manner a subject which will assume greater importance in the diagnosis and therapeusis of gastro-intestinal diseases.

C. K. WILLIAMS.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

PHYSICIANS LICENSED TO PRACTICE IN THE STATE OF MINNESOTA, APRIL, 1920

BY EXAMINATION

Name—	School and Date of Graduation	Address—
Appleby, John Isaac	U. of Minn. M. B. 1920	St. Paul, c/o City Hospital.
Anderson, David Derricks	U. of Minn. M. B. 1920	Minneapolis, 2811 E. Franklin Av.
Anderson, Frank Joseph	U. of Minn. M. D. 1917	Minneapolis, 2931 18th Av. S.
Arvidson, Carl Gustav	U. of Minn. M. B. 1920	Minneapolis, 1004 E. 15th St.
Badger, Lucius Franklin	U. of Minn. M. B. 1920	Minneapolis, 329 Union St. S. E.
Benjamin, Walter Glevae	U. of Minn. M. B. 1920	Hutchinson, Minn.
Blaustone, Henry H.	U. of Minn. M. B. 1920	Minneapolis, 2524 4th Av. S.
Borgeson, Egbert John	U. of Minn. M. B. 1918	Hanska, Minn.
Branton, Alloys Franklin	U. of Minn. M. D. 1920; U. of Minn. M. B. 1919	Willmar, Minn.
Cantwell, William Findlay	U. of Minn. M. B. 1920	White Bear, Minn.
Christianson, Harry Walter	U. of Minn. M. B. 1920	Minneapolis, Swedish Hospital.
Countryman, Roger Simmons	U. of Minn. M. B. 1920	St. Paul, 213 S. Avon St.
Crow, Earl Roy	U. of Minn. M. B. 1920	Minneapolis, 421 6th St. S. E.
Crowl, Verne Chase	U. of Minn. M. B. 1920	Minneapolis, 610 E. 15th St.
Culligan, John Maurice	U. of Minn. M. B. 1920	St. Paul, 2069 Iglehart.
Curtin, John Francis	Harvard, M. D. 1915	Minneapolis, Plaza Hotel.
Daniels, Harry Anthony	U. of Minn. M. B. 1920	Two Harbors, Minn.
Doyle, George C.	U. of Minn. M. B. 1920	West Duluth, 29 53rd Av. N.
Doyle, Lawrence Oscar	U. of Minn. M. B. 1920	Minneapolis, 506 Oak St.
Flagstad, Albert Edward	U. of Minn. M. B. 1920	Minneapolis, 4833 27th Av. S.
Flores, Miguel Angel	U. of Pa. M. D. 1918	Rollingstone, Minn.
Ford, Frances A.	U. of Minn. M. B. 1920	Minneapolis, 245 Irving Av. N.
Fowler, L. Haynes	U. of Minn. M. B. 1920	Minneapolis, 2808 Girard Av. S.
Gault, Charles Cullom	U. of Minn. M. B. 1920	Minneapolis, 500 Delaware St. S. E.
Gunderson, Nels Andrew	U. of Minn. M. B. 1920	Minneapolis, Swedish Hospital.
Henry, Myron Ormell	U. of Minn. M. B. 1920	Minneapolis, 958 26th Av. N. E.
Hoffman, Max Harold	U. of Minn. M. B. 1920	St. Paul, 1378 Ashland.
Holley, Wm. Henry Wallace	U. of Minn. M. D. 1917	Halstead, Kans.
Hultkrans, Joel Carl	U. of Minn. M. B. 1920	St. Paul, 1608 Van Buren.
Hutchinson, Chas. Joseph	U. of Minn. M. D. 1917	Minneapolis, 3806 Blaisdell Av.
Jackson, Arnold S.	Columbia U. M. D. 1919	Rochester, Minn.
Johnson, Ellsworth Julian	U. of Minn. M. B. 1920	Minneapolis, 2432 Bryant Av. S.
Juergens, Herman Morlock	U. of Minn. M. B. 1920	Minneapolis, 329 Union St. S. E.
Kadesky, David	U. of Minn. M. D. 1918	Minneapolis, 219 Harvard St. S. E.
Kinsman, Frank Cyrenus	U. of Minn. M. B. 1920	Minneapolis, St. Mary's Hospital.
Larson, Leroy James	U. of Minn. M. B. 1920	Minneapolis, 329 Union St. S. E.
Lundholm, Arthur Maurice	U. of Minn. M. B. 1920	St. Paul, 1514 Lincoln Av.
Mahowald, Aloys	St. Louis U. M. D. 1920	Duluth, St. Mary's Hospital.
Mayer, Lillian M.	U. of Minn. M. B. 1920	Great Falls, Mont.
Mills, John L.	U. of Minn. M. B. 1920	Pelican Rapids, Minn.
Miners, George Alfred	U. of Minn. M. B. 1920	Minneapolis, 329 Union St. S. E
Moersch, Herman John	U. of Minn. M. B. 1920	St. Paul, 1993 Ashland Av.
Morris, Ernest Henry	U. of Neb. M. D. 1919	Austin, Minn.
Muller, Rudolph Theodore	U. of Minn. M. B. 1920	St. Paul, 672 Cable Av.
Nannestad, Rolf Frederick	U. of Minn. M. B. 1920	Minneapolis, St. Barnabas Hospital.
Norrgard, Henry T.	U. of Minn. M. B. 1920	Milaca, Minn.
Pedersen, Arthur Herman	U. of Minn. M. B. 1920	St. Paul, 75 S. Victoria.
Peterson, Willard Carl	U. of Minn. M. B. 1920	Minneapolis, 1023 21st St. E.
Platou, Erling S.	U. of Minn. M. B. 1920	Minneapolis, 429 Union St. S. E.
Ryan, Mark Edward	U. of Minn. M. B. 1920	Minneapolis, 329 Union St.
Robinson, Byron Lewis	U. of Minn. M. B. 1920	Minneapolis, 44 Melbourne Av.
Rosenholtz, Burton	U. of Minn. M. B. 1920	St. Paul, 819 Portland.
Salt, Clifford Green	U. of Minn. M. B. 1920	Minneapolis, 317 9th Av. S. E.
Seaberg, John Arthur	Northwestern, M. D. 1920	Minneapolis, 914 Elliot Av.
Steffens, Leon Alex	U. of Minn. M. B. 1920	Minneapolis, 3328 Portland S.
Stratte, Harold Conrad	U. of Minn. M. B. 1920	Dawson, Minn.
Strong, Geo. Frederic	U. of Minn. M. B. 1920	St. Paul, 436 Portland Av.
Sullivan, Raymond Michael	U. of Minn. M. B. 1920	Minneapolis, 1211 Chestnut Ave.
Vik, Arthur Elliott	U. of Minn. M. B. 1920	St. Paul, 1815 Iglehart.
Widen, Wilford F.	U. of Minn. M. B. 1920	Minneapolis, 2836 Bloomington Av.
Zanger, Henry George	U. of Minn. M. B. 1920	Minneapolis, 3037 Emerson Av. S.

LICENSED THROUGH RECIPROCITY

Bell, Charles Curry	Rush, 1919	St. Paul, City Hospital.
Davis, Benjamin Franklin	Rush, 1912	Chicago, 122 S. Michigan Av.
Gibson, Paul Edison	U. of Iowa, 1919	Crookston, Minn., Box 247.
Grigsby, Roll O.	Rush, 1916	Rochester, Minn.
Hall, Cluley Calvin	U. of Iowa, 1919	Rochester, Minn.
Hartman, Howard Russell	U. of Mich, 1914	Rochester, Minn.
Schulberg, Peter Arthur	U. of Ill., 1914	Minneapolis, 1031 13th Av. S. E.
Smith, Cyril McNutt	Northwestern, 1918	Coleraine, Minn.

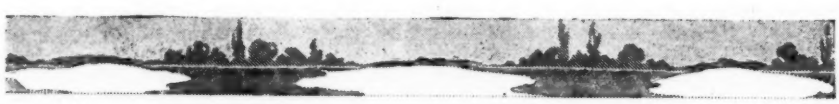
LICENSED UNDER THE LAWS OF 1919
(OVERSEAS SERVICE SIX MONTHS OR MORE)

Allison, Robert Glenn	U. of Maryland, 1912	Minneapolis, University Hospital.
Chaney, Ralph Hill	U. of Pa., 1914	Rochester, Minn.
De Tuncq, George P.	Hah. Chicago, 1917	Wausau, Wis., 520 3rd St.
Elliott, Leo Louis	Geo. Wash. U. D. C. 1910	Warroad, Minn.
Garrison, Herbert Thomas	Bennett, 1915	Keens, Ill.
Grove, Arthur Francis	U. of Ill., 1910	Dell Rapids, S. D.
Hundling, Herman William	U. of Ia., 1915	Rochester, Minn.
Leonard, Veader Newton	Johns Hopkins, 1911	Rockford, Ill., (Windsor Apt.)
Levinthal, Daniel Harold	Chic. Coll. Med. & Surg. 1917	Chicago, 1251 S. Harding Av.
Linhardt, Oscar Vernon Norbert	U. of Maryland, 1915	Bancroft, Ida., P. O. Box 177.
Mackedon, Thos. Edward	Marquette, 1913	Post Hosp., Ill., Rock Island Arsenal
Mastin, Edward Vernon Metcalfe	U. of Pa. 1916	Rochester, Minn.
Murphy, Walter Waugh	Northwestern, 1911	Gilbert, Minn.
Myre, Stanley Lawrence	Marquette, 1915	Minneapolis, 3428 5th Av. S.
Parker, Bennett Roland	Rush, 1916	Rochester, Minn.
Rankin, Fred Wharton	U. of Maryland, 1909	Rochester, Minn.
Sayers, Frank Eugene	U. of Mich., 1913	Rochester, Minn.
Schlesselman, Geo. Herman	Hah., Chicago, 1913	Fond du Lac, Wis., 47 S. Main St.
Wagener, Henry Patrick	Med. Coll. So. Carolina, '13	Rochester, Minn.

PHYSICIANS LICENSED TO PRACTICE IN THE STATE OF MINNESOTA, JUNE, 1920

BY EXAMINATION

Andrews, Clayton Farrington	U. of Pa. M. D. 1916	Rochester, Minn.
Brown, Richard Joseph Carroll	U. of Minn. M. B. 1920	Minneapolis, 608 E. 14th St.
Deane, Helen M.	U. of Minn. M. B. 1920	Minneapolis, c/o University Hospital
Drips, Della G.	U. of Minn. M. B. 1920	Rochester, Minn.
Foster, William Kerr	U. of Minn. M. B. 1920	Minneapolis, 714 University Av. S. E.
Gutsell, Robert Squier	U. of Minn. M. B. 1920	St. Paul, c/o St. Lukes Hospital.
Kriz, Rose Alice	U. of Minn. M. B. 1920	Milwaukee, Wis., 3826 Vliet St.
McCartney, James Shearer, Jr.	Johns Hopkins, 1917	Rochester, Minn.
McFarlane, Lloyd E.	U. of Minn. M. B. 1920	Minneapolis, 509 River Road E.
McKinlay, Chauncey Angus	Kansas Univ., 1916	Minneapolis, University Hospital.
Myers, Jay Arthur	U. of Minn. M. B. 1920	Minneapolis, General Hospital.
Richdorf, Lawrence Francis	U. of Minn. M. B. 1920	Minneapolis. c/o University Hospital.
Rypins, Harold Levi	Harvard, 1919	St. Paul, 210 S. Victoria St.
Ziegler, Lloyd Hiram	U. of Minn. M. B. 1920	Minneapolis, 4544 45th Av. S.

THROUGH RECIPROCITY

Baldwin, Otis Johnson	Marion Sims, 1903	Coleraine, Minn.
Busman, George J.	U. of Mich.; 1918	Rochester, Minn.
Derauf, Benjamin Irving	U. of Iowa, 1919	Brainerd, Minn.
Goeckermann, Wm. Henry	Wis. P. & S., 1906	Rochester, Minn.
King, Frank Lambert	Pulte, 1888	TimberLake, S. D.
McCall, Harry Kenyon	U. of Ill., 1901	Waterloo, Ia., 306 1st Natl. Bk. Bldg.
Page, Clarence Vernon	U. of Iowa, 1902	Sheldon, Ia.
Rowley, Walter Nelson	Northwestern, 1918	Rochester, Minn.